JUL 2 1927

In Two Sections—Section Two

Engineering News-Record

A Consolidation of Engineering News and Engineering Record

A JOURNAL OF CIVIL ENGINEERING AND CONTRACTING

ISSUED WEEKLY

VOLUME 98

January 1 to June 30, 1927

McGRAW-HILL PUBLISHING COMPANY, INC.
TENTH AVENUE AT 36TH STREET
NEW YORK

INDEX TO ENGINEERING NEWS-RECORD

VOLUME 98—January 1 to June 30, 1927

	Pages
Jan. 6	1 to 48
Jan. 13	49 to 98
Jan. 20	99 to 138
Jan. 27	139 to 178
Feb. 3	179 to 222
Feb. 10	223 to 262
Feb. 17	263 to 302
Feb. 24	303 to 344
Mar. 3	345 to 388
Mar. 10	389 to 430
Mar. 17	431 to 470
Mar. 24	471 to 510
Mar. 31	511 to 550
Apr. 7	551 to 594
Apr. 14	595 to 634
Apr. 21	635 to 674
Apr. 28	675 to 714
May 5	715 to 758
May 12	759 to 798
May 19	799 to 838
May 26	839 to 886
June 2	887 to 930
June 9	931 to 968
June 16	969 to 1006
June 23	1007 to 1044
June 30	1045 to 1082

A

Abrams, D. A., resignation from Portland Cement Association n372
Joins International Cement Corporation n746
Accidents and accident prevention:
Birmingham Electric Co. power house stack collapse due to rusted rivets .. n207
New York City, derrick falls killing four. Equitable Trust office building n93
Silver cups for safety offered by contractors 1046, n1075
Tank tower wrecked by twisting after removal of diagonals, Peabody, Mass. 121
AERONAUTICS
Air-right warehouses to be erected in Chicago n503
Colombia, S. A., frontiers eliminated by air mail e100
Survey equipment to Hudson Bay by airplane n422
Valiant, the (Captain Lindbergh) e839
Albany, N. Y., port development status at end of 1926 64
American Association of Engineers:
Annual meeting at Tulsa e969, n997
Chicago section award of merit n831
Correspondence schools that mislead, plan to fight them n295
AMERICAN CONCRETE INSTITUTE
Annual meeting n293, e346, n372
Philadelphia to have 1928 meeting n828
American Engineering Council:
Department of Public Works bill submitted to Congress 154
American Institute of Quantity Surveyors, meeting announced n504
AMERICAN RAILWAY ENGINEERING ASSOCIATION
Annual meeting, reports on track structure, bridges, terminals and freight yards, economics, etc., business and election e432, 448, n461, a536
Brumley, D. J., elected president n*463
Discussion needed at meetings e305
AMERICAN ROAD BUILDERS' ASSOCIATION
Annual meeting at Chicago e100, 113
Design and maintenance technique subject of papers. F. T. Sheets, L. R. Ames, J. L. Harrison, E. F. Kelley, W. H. Root, T. W. Allen and J. T. Ellison a*125
Financing:
Budget and fiscal committee report, and publicity therefor e139, n168
Prizes won:
College students' essay contest n745
Engineers' essay contest n36
Road Show:
Chicago geographically situated for meeting, but other cities also e100
Equipment exhibits showing trends n133, n*173
Road show of 1928 to be at Cleveland n710, e759
Auditorium being built n*1040
AMERICAN SOCIETY FOR TESTING MATERIALS
Annual meeting:
Announced to be at French Lick n462
New age, centenary passed e1046
Report, general, of proceedings 1068
Program announced n831
Committees, 26, meet in Philadelphia n376, n502
International Testing materials Congress to be revived n503
Officers nominated n745
American Society of Agricultural Engineers, annual meeting n879
AMERICAN SOCIETY OF CIVIL ENGINEERS
Annual meeting (74th) n127, 156, n168
Asheville, N. C., spring meeting, program. Board of Direction meeting, and meeting—far from the city .. n341, n864, ... e675, n702
Discussion time not sufficient, says engineer from Manila, P. I. A. Gideon .. 1292
Election, ballot results n127
Hurricane action study e139
Medals and prizes awarded at 1927 annual meeting n*129
Nomination for president, method changed n421
Stevens, J. F., elected president n*127
Woman admitted to corporate membership n463
AMERICAN WATER WORKS ASSOCIATION
Annual convention at Chicago:
Exhibitors applying for space n748
Convention publicity aided by manufacturers n671
Progress, abstracts of papers, business, exhibits e970, a985, n997, n1002, a1028
Officers nominated n423
Sewage-works section proposal — but water is enough e839
Sewage-works section will not be formed, but several associations to cooperate in sewage research e969, n998
American Welding Society:
Annual meeting n741
Miller medal established n828
AMERICAN WOOD PRESERVERS' ASSOCIATION
Annual meeting n254
Annual meeting papers abstracted 269
AQUEDUCTS
Los Angeles water supply aqueduct
Dynamited at No Name siphon n915
Dynamited fourth time n1035
Three times dynamited in two weeks n*960
Van Norman, H. A., injured in motor accident n960
Wanaque aqueduct in New Jersey.
Changes arouse municipalities n916
Controversy on aqueduct and on watershed yield, general statement e1045, 1062
Engineer consultant will report on controversy between concrete and steel n959
Johnson substituted for Pratt and Sherrerd n832
Secret engineering question e931
Steel substituted for concrete n746
S. M. Ellsworth 1827
Umpire to be chosen n1035
Snow, F. H., may pass upon controversy n1075
ASPHALT
Detroit Asphalt Paving Co. not monopoly, judge rules n131
Melting kettle improved (Littleford Bros.) n*585
Associated Equipment Distributors discuss trade-ins n546
ASSOCIATED GENERAL CONTRACTORS
Annual meeting at Asheville e181, 198
Board, Executive, discusses industry problems at Washington n793
Executive Board, Advisory Board, President's Council and Secretary's council to meet in May n582
Local sections' co-operation in purchasing to eliminate the middleman, discussed at Asheville e179
Quantity surveying progress aided by local chapter bureaus e223
Selling construction, price versus service, W. T. Chevalier 244
Silver cups offered for safety prevention work e1046, n1075
Sollitt, S., elected president n*294
Association of Highway Officials of North Atlantic States, convention at Atlantic City e303, n337

B

Backfilling:
Backfiller, unit cast steel construction (Harnischfeger Corp.) n*795
"Kicker" aids backfilling on same side as machine (Baker Steel & Machinery Co.) n*711
Machine designed for all light crane work (Buckeye Traction Ditcher Co.) n*40
Baltimore, Md.:
Bonds, $47,500,000 approved ... n627, n789
Sewerage system, financing, M. J. Ruark and C. E. Keefer *724
Zoning upheld n544
Barges for upper Mississippi River use ... n628
Beach Preservation Association meeting .. n793
BEAMS
Carnegie new series of I-beam and column sections *362
Corrosion:
Tests of corroded steel beams restored with gunite, at Ohio State University, J. R. Shank *574
I-beams:
Carnegie new series of I-beams and column sections *362
Surface area of beams and channels computed from chart for use in painting, R. J. Slater j*497
Blueprints:
Developed dry — new printing paper (Eugene Dietzgen Co.) n260
Double-face blueprints for road plans, J. F. Trumpour ..... l 250
Boiler, 25,000 lb., transported across river bed in oil field development j*620
Bonds:
Budgeting of bonds, as in St. Louis, New York State, and Dallas e180
City or highway bonds. (See city or Highway financing or Municipal improvements.)
BOOK REVIEWS
Activated process of sewage treatment (General Filtraton Co.) 124
American Institute of Quantity Surveyors, Proceedings 992
Architectural construction, Vol. II, Analysis of structural design of American buildings, Book Two, Steel construction (W. C. Voss and E. A. Varney) .. 993
Auskleidung von druckstollen und druckschacten (O. Walch), reviewed by I. Gutmann 286
Austria's power industry. (See under Oesterreichs.)
Baulanger tiefliegender gebirgstunnel (C. Andreae) 124
Beginning of the New York Central Railroad, a history (F. W. Stevens) 457
Belastung des baugrundes 824
British water-works year book and directory 661
Civil engineering specifications and quantities (G. S. Coleman and G. M. Flood) 123
Concrete, German books, seven reviewed. 992
Concrete practice, text for vocational and trade schools (G. A. Hool and H. E. Pulver) 287
Design and construction of formwork for concrete structures (A. E. Wynn) ... 288
Distribution age (R. Borsodi) 824
Fatigue of metals (H. F. Moore and J. B. Kommers) 991
Fortschritte der abwasserreinigung (K. Imhoff), reviewed by A. Wolman ... 287
Grundbau (O. Franzius) 824
Guiding principles of public service regulation (H. C. Spurr) 289
Highway administration and finance (T. R. Agg) 288
History of 11th Engineers (V. T. Boughton) 994
Hydro-electric handbook (W. P. Creager and J. Justin), reviewed by F. A. Allner 658
Introduction to production economics (J. D. Black) 458
Land planning in the United States for the city, state and nation (H. James) 123
Main Street and Wall Street (W. Z. Ripley) 457
Mecanisme de l'eau et principes generaux pour l'etablissment d'asines hydro-electriques (R. Koechlin), reviewed by A. J. Luchinger 823
Migration and business cycles (H. Jerome) 289
Miscellaneous scientific papers of F. P. Sheldon & Son—cotton spinning, etc. 288
Movable bridges—Vol. II, Machinery (O. E. Hovey) reviewed by H. C. Baird.. 456
Municipal finance (A. E. Buck) 659
Municipal index, 1927 (H. S. Buttenheim, T. Kimball) 660
Nation plan—suggestion for world plan (C. Kehr) 123
New towns for old (J. Nolen) 991
Oesterreicks energiewirtschaft (Austria's power industry) (several authors), reviewed by E. E. Halmos 660
Old towpaths (A. F. Harlow) 824
Panama Canal, history, activities, and organization (D. H. Smith) 992
Practice of municipal administration (L. D. Upson) 993
Railway fuel (E. McAuliffe) 991
Science and practice of land valuation W. W. Pollock and K. W. Scholz 993
Story of the western railroads (R. E. Riegel) 122
Traffic management (G. L. Wilson) ... 457
Transportation on the Great Lakes (Board of Engineers for Rivers and Harbors) 124
Tropical cyclones (I. M. Cline) 286
Waterworks handbook of design, construction and operation (A. D. Flinn), reviewed by C. M. Saville 122
Vaughan, Dr. V. C. (autobiography) .. 824
BOSTON, MASS.
Federal building, new, proposed n*256
Water supply, status at end of 1926 .. 64
Brace, for trench work (Templeton, Kenly & Co.) *1076
BRICK
Asphalt brick for bridge floors and grade crossings (Asphalt Brick Co.) n631
Imports of brick show heavy gain ... n*1005
Research would bring wider field for brick, recommendation of paper to manufacturers' association 535
Thin brick, 2½ in., added to paving brick standards e552, n584
Thin paving brick (A.R.B.A. paper), E. F. Kelley a*116
BRIDGE ABUTMENTS AND PIERS
Piers:
Buffalo-Fort Erie bridge piers built in swift current, R. W. Cady *638
Carquinez Strait bridge, caisson sinking in deep water, novel methods. e471, G. J. Calder *484
Rumanian bridge pier subsidence wrecks concrete arches *557

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news

Eng. lib
Wahr

BRIDGE ACCIDENTS

Little Schuylkill River at Mokino, Pa., power shovel on heavy truck causes bridge failure n1037
Richfield Center, Mich., bridge destroyed in automobile collision n960
Rumanian bridge pier subsidence wrecks concrete arches *557

BRIDGE CONSTRUCTION

Buffalo-Fort Erie bridge over Niagara River *802
Carquinez Strait bridge, raising spans by counterweighted cables. e626, C. F. Goodrich *686
Fort Snelling-Mendota bridge over Minnesota River, concrete arch, foundations and construction. W. H. Wheeler *514
Gas pipe elevated bridge over Buffalo River, launching and hoisting. W. R. Jewel j*784

BRIDGE DESIGN

Arch bridges:
Kill van Kull bridge, Staten Island to New Jersey e264, *284
Rhine River bridge at Cologne, Germany, arch design wins over suspension. 275, W. Schachenmeier l914
Undercrossing of Hutchinson River parkway drive under New York Central embankment, arch design cheaper than girder. A. G. Hayden *310
Bascule bridge, short rolling-lift span, on Atlantic Coast Line R.R. in Georgia *325
Carquinez Strait cantilever bridge:
Economic studies and design of structure. D. B. Steinman *777
Raising spans by counterweighted cables. e26, C. F. Goodrich *686
Holland Tunnel, New Jersey approach designed as concrete-cased steel viaduct with special expansion joints *564
Kill van Kull arch bridge, Staten Island to New Jersey e264, *284
Kiwanis club stages student contest in design for Omaha bridge e224
Kovno, Lithuania, bridge competition decided 1021
McKinley bridge over Mississippi River, highway paving on railway bridge ... 809
Missouri River bridges, South Dakota builds five. J. E. Kirkham *736
Railway bridges:
Curb guard for bridge protection in District of Columbia j*414
Girders, plate, in railroad bridge over Stonycreek River at Johnstown, Pa.. 605
Stress measurements:
Bridge over Yadkin River in North Carolina, stress distribution tests to be made n421
Suspension and arch designs in Cologne bridge competition. 275, W. Schachenmeier l914
Suspension design adopted n961
Bridge reconstruction and repair:
Florida, Biscayne Bay bridge, approaches restored by use of steel sheet piling.. *695
Havre de Grace bridge in Maryland, double-decking. J. N. Mackall *898
Lynchburg, Va., Beck memorial bridge, old iron viaduct converted to reinforced-concrete structure. J. F. Hough *650
Railway bridges in Australia reinforced by arc welding 1017
Welding of rolling-lift bascule bridge of Baltimore & Ohio R.R. at Chicago ... j*333
Bridge moving:
Sixth St. bridge, Pittsburgh, Pa., moving 440-ft. spans downstream to new location. D. T. Jerman *850
Whittier Boulevard bridge jacked sideways *8
Bridge tests:
Destruction test of highway bridge in North Carolina 735

BRIDGES

Arch:
Fort Snelling-Mendota bridge over Minnesota River, concrete arch, foundations and construction. W. H. Wheeler *514
Kill van Kull bridge, Staten Island to New Jersey, planned e264, n*284
"Authority" plan of Governor Smith of New York for St. Lawrence River bridge has fatal weaknesses e596
Baker's Haulover bridge. (see Bridge design, or Bridges, Florida—Biscayne Bay.)
Bascule:
Chicago River bridge of Baltimore & Ohio, welding repair on rolling-lift bascule bridge j*333
Railway rolling-lift bascule bridge on Atlantic Coast Line R.R., construction of short span *325
Beck memorial bridge. (See Bridges, Lynchburg, Va.)
Biscayne Bay bridge, Florida, approaches restored by use of steel sheetpiling .. *695
Damage to bridge discussed. D. B. Luten l*1073
Buffalo-Fort Erie bridge over Niagara River:
Construction *802
Piers built in swift current. R. W. Cady *638
Buffalo River, gas pipe elevated bridge, built, launched, hoisted. W. R. Jewel j*784
Cantilever:
Chattahoochee River, old wooden lattice bridge replaced by cantilever. S. B. Slack *186
Carquinez Strait bridge:
Caisson sinking in deep water, novel methods. e471, G. J. Calder *484
Design of structure, including economic studies. D. B. Steinman *777
Opened to traffic n878
Spans lifted to place by counterweighted cables. n*462, e626, C. F. Goodrich *636
Status at end of 1926 62
Champlain, Lake, bridge, New York to Vermont:
Compact to be drafted n423
Location selected, Chimney Point to Fort Frederick n37
Chef Menteur Pass, Louisiana granted permit to build bridge n707
Columbia River bridge, Longview to Rainier:
Authorized by Congress n424
Federal hearings occupy five days ... n543
Project approved n1037
Curb guard for bridge protection in District of Columbia j*414
Delaware River bridges:
South Philadelphia to near Red Bank: Pennsylvania legislature gets bill, and authorizes making of studies n296, n667
Tacony to Palmyra toll bridge planned n170
Authorized by Congress n424
Detroit, Mich.:
Associated Technical Societies of Detroit defer action on international bridge n1038
Bridge and tunnel to Windsor planned n423, n745
City to vote on international bridge.. n960
Drawbridges:
Newark Bay bridge closing, report is without foundation n92
Fort Snelling-Mendota bridge over Minnesota River, concrete arch, foundations and construction. W. H. Wheeler *514
Havre de Grace bridge in Maryland, double-decking. J. N. Mackall *898
Holland Tunnel, New Jersey approach designed as concrete-cased steel viaduct with special expansion joints *564
Hudson River:
Catskill, N. Y., bridge proposed n421
Fort Lee bridge:
Contract, first, let for piers of New Jersey tower n746, e759
New York engineers discuss bridge n336
Status at end of 1926 64
Poughkeepsie bridge:
Four millions appropriated n171
Status at end of 1926 64
Kansas City, Mo., Missouri River bridge to be used free by city n424
Kill van Kull arch bridge, Staten Island to New Jersey e264, *284
New Jersey appropriation n374
New York provides $2,000,000 ..... n543
Lattice wooden bridge on Chattahoochee River replaced by cantilever. S. B. Slack *186
Logging timber bridge of Pacific States Lumber Co. is 204 ft. high j*699
Lynchburg, Va., Beck memorial bridge, old iron viaduct converted to reinforced-concrete structure. J. F. Hough *650
McKinley bridge over Mississippi River, Highway paving on railway bridge ... 809
Missouri River, five bridges in South Dakota, built by state. J. E. Kirkham *736
Montreal bridge:
Completion to be in 1930 or 1931 ... n171
Mount Hope toll bridge in Rhode Island, bill passed n665
New York City:
Overcrossing at Broadway and Fulton St. (Schultz etching) e223
Proposal as municipal toll-refunding project e887
Tri-borough bridge, Long Island to Mainland, proposed n542
Postponement of project n880
New York Port Authority bridges:
New Jersey law giving state commission power to pass on all Port Authority contracts e512, n541
Niagara Gorge bridges, three, projected n375
Niagara River highway bridge authorization refused by Canada n668
Ohio River bridge of Chesapeake & Ohio Ry., Covington to Cincinnati, long channel span n464
Ohio River bridges, three bills in Congress n37
Pittsburgh, Pa., Sixth St. bridge, moving 440-ft. spans downstream to new location. D. T. Jerman *850
Poughkeepsie, N. Y., suspension bridge over Hudson River. (See Bridges, Hudson River.)
Rhine River bridge at Cologne, Germany, arch design wins over suspension. 275, W. Schachenmeier l914
Ross Island bridge at Portland, concrete delivery for pouring floor j248
Rumanian bridge, pier subsidence wrecks concrete arches *557
St. Johns River, in Florida, Shands bridge to be built by Fred T. Ley Co. n296
San Francisco Bay bridge:
Engineers named to study all phases of problem n462
Engineers, three, appointed by board of public works to study and report on projects n541
Project situation n94
Sites, three, selected by Ridgway-Talbot-Galloway board n788, *820
Route 1, of the three locations, approved by San Francisco board of supervisors.
University presidents, four, name engineers to select bridge site n374
Stonycreek River bridge at Johnstown, Pa., railroad bridge with long plate girders 605
Suspension:
Cologne, Germany, bridge. (See Bridge design, suspension.)
Poughkeepsie bridge over Hudson River. (See Bridges, Hudson River.)
Test to destruction of highway bridge in North Carolina 735
Timber bridges:
Logging timber bridge of Pacific States Lumber Co. is 204 ft. high j699
Runway aids rebuilding bridge under traffic. (W. W. Zass) j*701
Toledo, Ohio, Terminal R.R. may build double-deck bridge over Maumee River n296
Toll bridges:
California toll bridges to be under scrutiny n959
Columbia River bridge, Longview to Rainier, authorized by Congress ... n424
Congress bill introduced with reference to toll bridges n296
Delaware River bridge, Tacony to Palmyra, planned, and authorized by Congress n170, n624
Fallacy of considering toll bridge a public utility e225
Indiana, eight toll bridges projected .. n36
Interests plan united front n92
Mount Hope toll bridges in Rhode Island, bill passed n665
National Automobile Chamber of Commerce urges care in toll bridge financing n464
Nebraska proposes toll bridges n1035
Owners of toll bridges form association n128
Thousand Islands toll bridge bill vetoed by Governor Smith n580, e596
Tri-borough bridge. (See Bridges, New York City.)
Washington state act opposing toll bridges, and New York and other states oppose e596
Washington state moves to abolish toll bridges 856
Tri-borough bridge. (See Bridges, New York City.)
Undercrossing of Hutchinson River parkway drive under New York Central embankment, arch design cheaper than girder. A. G. Hayden *310
Vicksburg and Natchez bridges approved by War Dept. n745
Whittier Boulevard bridge jacked sideways *8
Yadkin River bridge in North Carolina, stress distribution tests to be made .. n421
British Industries Fair n258
Buckets. (See Cranes.)
Building accidents:
Steel mast buckles while razing New York building n1074

BUILDING CONSTRUCTION

Axis lines and bench marks to locate machinery, etc., in large power plant. H. M. Naylor j*246
Concrete:
Paper mill construction job, steam-cured cylinders give 28-day concrete strength in 48 hours. M. S. Gerend *282
Plumbing structural steel on American Insurance Building at Columbus, Ohio. R. L. Waring j*163
Sherry-Netherlands Hotel in New York City, fire in high framework adds another skyscraper hazard ... e637, n*665
Warehouses, Detroit, Toronto, Montreal, built by Parklap, Inc., design and frost protection methods. 715, L. C. Hammond *730
Welded (arc-welded) buildings, two, at Westinghouse plant at Pittsburgh, construction procedure. A. G. Bissell .. *942
Welding of steel frames. (See Building design, welded buildings.)
Building demolition:
Park Avenue Hotel, New York City, demolition reveals cast and wrought-iron details *182

BUILDING DESIGN

Arch, front-wall, abuts against columns in Philadelphia store building. C. Carswell j*164
Corrected j*246
Axis lines and bench marks to locate machinery, etc., in large power plant. H. M. Naylor j*246
Catenary roof construction impracticable. W. E. King l250
Columns:
Steel slabs for column bases, proportioning. R. Fleming *941
Earthquake resistance:
Calexico and Mexicali buildings damaged by earthquake *572
Fire Underwriters of Pacific, Board of, survey of buildings to determine earthquake resistance, e760, e1047, E. W. Bannister *1052
Insurance companies' research constitutes earthquake-resistance design a financial matter e1047
Mitsui Main Building, Tokyo, Japan, designed for earthquake resistance e1008, J. W. Pickworth and W. H. Weiskopf *1010
Rating buildings for liability to earthquake damage, plan of Fire Underwriters of the Pacific. E. W. Bannister *1052

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news

Floor of Sacramento memorial auditorium designed for level or inclined position *488
Florida hurricane damage due to faults in application of materials and in anchorage and bracing. L. F. Fletcher 281
Girder footings of reinforced concrete carry eccentric columns. C. Carswell j*415
Graybar Building, New York City, world's largest office building, structural features. R. W. Chew *226
House with steel frame and brick walls .. 438
Mitsui Main Building, Tokyo, Japan, design for earthquake resistance. e1008, J. W. Pickworth and W. H. Weiskopf.*1010
Roxy theatre, New York City, large balcony carried by heavy truss framing. A. T. North *266
Consulting engineer's name omitted. A. T. North .....l 460
San Francisco building code earthquake requirements being revised e677
San Francisco engineers not unmindful of earthquake hazards. C. H. Snyder..l 955
Seismograph for earthquake recording, value to the engineer.....984
Steel and concrete frame for bank at Fayetteville, N. C. W. Atlee *771
Stresses:
Concrete of high strength for columns does not permit higher steel stress. H. J. Gilkey and M. Hirschthal ..l 166
Tall buildings should be cylindrical. T. Kuo .....l 577
Welded buildings:
Construction procedure on two arc-welded buildings at Westinghouse plant at Pittsburgh. A. G. Bissell *942
Derry, Pa., welded factory building under construction n961
Detroit, Mich., Barnes Wire Fence Co., building of welded construction .. 642
Glasgow, Scotland, building welded years ago. H. A. McCreadie.....l 420
Residences in New York City area of welded construction j*1033
Sharon, Pa., Westinghouse factory, designing for arc-welding. G. D. Fish *102
Girders tested with hydraulic jacks. G. D. Fish *982
Sharon building inspected.....n*36
Wind action:
American Society of Civil Engineers making study of hurricane action...e139

BUILDING LAWS AND REGULATIONS

Building codes:
Chicago building code may be revised.n788
New York State, bill calling for building supervision by engineer or architect n374
Roanoke, Va., set-back ordinance upheld by U. S. Supreme Court.....n918
San Francisco building code earthquake requirements being revised.....e677
Building Officials' Conference:
Annual meeting at Chicago.....n792
Building reconstruction and repair:
Municipal pier, St. Petersburg, Fla., bandstand concrete slab lowered on melting ice cakes. E. A. Nordstrom..j698
Raising and leveling sanitarium at Edwardsville, Ill. *528

BUILDINGS

Air-right warehouses to be built in Chicago n503
American Insurance Union Building at Columbus, Ohio, plumbing structural steel. R. L. Waring.....j*163
Chicago, Ill., engineering building planned n*256
Edwardsville, Ill., sanitarium building raised and leveled.....*528
Fayetteville, N. C., bank with composite steel and concrete frame. W. Atlee *771
Graybar Building, New York City, world's largest office building, structural features. R. W. Chew *226
Largest office building. (See Buildings, Graybar.)
Mitsui Main Building, Tokyo, Japan, designed for earthquake rsistance. e1008, J. W. Pickworth and W. H. Weiskopf.*1010
Ohio Bell Telephone Building on difficult mat foundation in Cleveland sand and clay. R. P. Wallis.....*364
Park Avenue Hotel, New York City, cast and wrought-iron details in old structure revealed in its demolition...*182
Roxy Theater, New York City, large balcony carried by heavy truss framing. A. T. North.....*266, l 460
Sacramento auditorium, floor designed for level or inclined position.....*488
Sharon, Pa., Westinghouse factory, designing for arc-welding. G. D. Fish.*102
Girders tested with hydraulic jacks. G. D. Fish *982
Sharon building inspected.....n*36
Sherry-Netherlands Hotel fire in New York City. (See Building construction.)
Tall buildings should be cylindrical. T. Kuo .....l 577
Theaters:
Roxy Theater, New York City, large balcony carried by heavy truss framing. A. T. North.....*266
Welded buildings:
Arc-welded buildings, two, at Westinghouse plant at Pittsburgh, construction procedure. A. G. Bissell.*942
Derry, Pa., welded factory building under construction n961
Detroit, Mich., Barnes Wire Fence Co. building of welded construction.... 642
Glasgow, Scotland, building welded years ago. H. A. McCreadie.....l 420
Residences in New York City area of welded construction j*1033
Sharon, Pa., Westinghouse factory, arc-welded. G. D. Fish *102
Girders tested with hydraulic jacks. G. D. Fish *982
Sharon building inspected.....n*36
Buses:
Motor bus as means of highway transportation. C. W. Stocks.....*80
Bulldozer, hydraulic, for caterpillar attachment. (LaPlante Choate Mfg. Co.)....n*98
By-product from waste that damaged sewer. 602

C

Cables:
Painting of 6,241-ft. cable span over Narrows at Puget Sound.....j*416
Cableways:
Mt. Hood, proposed aerial cableway to summit 447
Permit to construct cableway refused 647
Campbell bill liberalizing public works policy n171
Camps. (See Construction; Railway construction, etc.)

CANALS

Chesapeake and Delaware canal soon open to traffic.....n254
Florida canal to Lake Okefenokee proposed n918
Georgian Bay canal charter not to be renewed n918
Montreal, Ottawa and Georgian Bay Canal Co., Canadian opposition to renewal of charter.....n462
Morris canal in Newark, N. J.:
Bought for subway or railway use..n626
To be course for street car line.....e716
New York State Barge Canal:
Bill to adjudicate damages to craft owners if canal is abandoned.....e431
Nicaragua canal investigation planned by President Coolidge.....e635
Panama Canal:
Locks overhauled 488
St. Lawrence canal negotiations to start soon n581
Welland ship canal:
Status at end of 1926.....63
Car-ferry landing at Milwaukee, Grand Trunk Ry. *807

CEMENT

Alumina cement:
Bremerton navy yard pier supported on cylinders with shells of high alumina cement, J. J. Manning and W. F. Way.....*348
Caps of alumina cement show good adherence to hardened concrete specimens, tests for pavement work in Colorado. O. V. Adams 153
French test, paper by Freyssinet and Coyne 684
Improvements, recent, in making portland cement. F. W. Kelley..... *84
Michigan state cement plant, operation under question e389
Mill to be built in Maine by Lawrence Cement Co. n506
Rapid-hardening portland cement, new, Ferrocrete (Associated Portland Cement Manufacturers — England, and Ferrocrete Import Co.—United States).n965
Silicates in portland cement, international research. P. H. Bates..... 121
Storing cement specimens, box with constant temperature-humidity j953
Chamber of Commerce of United States:
Annual meeting at Washington discusses traffic, transportation, city planning..n791
Census of distribution in 11 cities under order of Herbert Hoover n1040
"Cherry picker" handles tunnel muck cars.j*335

CHICAGO, ILL.

Air-right warehouses to be erected.....n503
Bonds of $21,000,000 approved in election, for river, bridge, street and traffic work n581
Building code may be revised.....n788
Building exposition, permanent, ready May 1 .....n378
Building program aggregates $200,000,000 .....n94
Engineering building planned.....n*256
Industrial museum planned.....740
Lake-Front Park to cost $100,000,00.*241
Pedestrian traffic control proposed..... 450
Superhighway design wins prize.....*476
Traffic survey and recommendations.... 192
Water metering:
Thompson, Mayor, stops installation of meters e675
Water tunnel, Chicago Ave., new dragline machine mucks rock.....e840, *860

CHICAGO DIVERSION OF WATER FROM GREAT LAKES

New York may not claim loss of power by Chicago diversion.....n960
Chicago Regional Plan Commission:
Year's progress report.....n295
Chicago Sanitary District:
Budget for 1927 is $34,000,000.....n169
Chimneys:
Blast furnace felling guided by guy ropes, plant of American Steel and Wire Co. j248

CITY MANAGER PLAN

Defeats of plan in large cities and progress in some e1045
Indianapolis votes for city manager plan e1045
Oklahoma City and Rochester, N. Y., charters upheld n422

CITY PLANNING

New York State law authorizing town planning boards e471, n502
Street lighting as a phase of city planning e180
Washington, D. C., Union Station environs show lack of city planning...e596
Zoning:
Baltimore, Md., zoning upheld.....n544
Los Angeles zoning upheld by U. S. Supreme Court n917
Minneapolis zoning law upheld by U. S. Supreme Court.....n501
New Jersey constitutional amendment on zoning goes to voters.....n422
New Jersey's zoning campaign and amendment referendum e1007
Coal handling:
Wind gages for measuring wind gusts, designed for protective use on coal and ore bridges in Canada.....*280
Coast protection. (See Groins; Shore protection.)
Colombia, S. A.:
Buenaventura, port development.....*106
Transportation costs by rail and highway, "Caminero" .....l 252

COLUMNS

Carnegie new series of I-beams and column sections *362
High-strength concrete for columns does not permit higher steel stress. H. J. Gilkey and M. Hirschthal .....l 166
Nature builds trees like columns. C. Tappan .....l *1034
Steel-slab column bases. E. W. Stern.l *1034
Steel slabs for column bases, proportioning. R. Fleming.....*941
Tests:
Eccentric and shear loading tests at Wisconsin University for committee under F. E. Turneaure.....675, *682
Steel solid-web columns, 69, tested at U. S. Bureau of Standards.....*454

COMPRESSED AIR

Air compressors:
Portable compressor, new, and new clay digger (Chicago Pneumatic Tool Co.) n*98
Super-charger on compressor (Independent Pneumatic Tool Co.).....n*836
Unit-built, portable new compressor (National Brake & Electric Co.)..n*965
Compressed Gas Manufacturers Association meets n1078

CONCRETE

Alumina caps on hardened concrete specimens, adherence tests for pavement work in Colorado, O. V. Adams..... 153
Cement-paste theory, density of concrete and the water-cement ratio. e431, F. R. McMillan *445
Density of concrete and the water-cement ratio, cement paste theory. e431, F. R. McMillan.....*445
Formwork. (See Concreting, formwork.)
High-early-strength concrete:
Northwestern University stadium, concrete with increase in quantity of cement aids rapid building.....*492
High-strength concrete:
High-strength concrete for columns does not permit higher steel stress. H. J. Gilkey and M. Hirschthal....l 166
Ice or snow used to make porous concrete, in Finland.....n921
Instrument measure strain and temperature as at test dam (Bureau of Standards) n*920
Pile of high-strength concrete in 3 days by heating sand and mortar. L. K. White j320
Proportioning. (See Concreting, proportioning.)
Ready-mixed concrete at Birmingham, Ala., plant finds increasing market... 776
Sea water effect on concrete:
Humboldt Bay, California, ferry apron concrete piles have long life. G. F. Whittemore .....l 420
San Francisco waterfront, long service of many concrete structures. F. G. White.....l 251, l*827
Steam-cured cylinders give 28-day concrete strength in 48 hours, tests on a paper mill construction job. M. S. Gerend .....*282, l 624
Steel versus concrete—Professor Swain's paper.
Concrete imperfectly manufactured. E. Quinney .....l 292
Storage box for cement and mortar specimens, with constant temperature and humidity j953

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news

Strength:
Fineness modulus and concrete strength, relation. F. S. Besson....1 956
Prediction of 28-day strength:
Fineness modulus no measure of 28-day strength. H. O. Olson....*814
Two-day tests as basis. D. O. Nelson and F. E. Nichol.....*814
Steam-cured cylinders, tested on a paper mill construction job, give 28-day concrete strength in 48 hours. M. S. Gerend.....*282
Water-cement ratio theory in proportioning:
Time element in maximum attainable strength. T. Kuo.....1 958
Tests:
Arlington, Va., 40 highway slabs tested. J. T. Pauls.....a398
Water gain. (See Concreting.)
Workability:
Test by flexible mold, Bureau of Standards 728

CONCRETE AGGREGATES

Pit-run aggregate proportioning formula:
Crum formula and Edwards method. J. H. Griffith *399
Dangers in use of Crum and Griffith formulas. S. Walker.....1 500
Griffith's empirical formula not safe for uniform or economical concrete. J. A. Kitts.....1 577
Sand:
Consistency for Ottawa sand and local sand, same fineness modulus not complete test. M. N. Clair.....1 460
Flask and chart method for determining characteristics of sand. C. M. Chapman j*955
Local sands often discarded when usable. R. Bennett 1 291

CONCRETE MIXERS

Building mixers improved to meet requirements (Knickerbocker Co.)....n*711
Speedy 5-S mixer (Koehring Co.).....n*920
Traveling or transit mixer, truck mounted, used in Seattle.....j*497

CONCRETE REINFORCEMENT

Concrete Reinforcing Steel Institute plans book of specifications n36
Rail bars high-tensile reinforcing steel. American concrete Institute specification conflicts with other standards. H. P. Bigler.....1 663
Spiral reinforcement, steel, simplified practice recommendation of U. S. Department of Commerce *1 20
Concrete Reinforcing Steel Institute:
Annual meeting n630
Book of specifications and other plans. n36

CONCRETING

Aggregates:
Batchers, mechanical adjustment (Heltzel Steel Form and Iron Co.).....n*40
Drier for aggregates applies heat progressively (F. D. Cummer & Son Co.) n*40
Finishing:
Surfacer, improved (Concrete Surfacing Machinery Co.) n*1003
Formwork:
Fire in formwork on additional bleacher section of Chicago ball park.j165
Shores, adjustable, of steel and wood. H. G. Martin design.....j*495
Strips, of steel, eliminate spreaders (Hawley Tie Bolt Co.).....n*965
Glines Canyon dam, concrete makes 70-ft. vertical drop j*700
Guniting:
Sacramento valley irrigation line, corroded pipe repaired with gunite. R. G. Wadsworth.....j*496
Tests of corroded steel beams restored with gunite, at Ohio State University. J. R. Shank.....*574
Lugert dam in Oklahoma, concrete mix design. W. L. Benham.....*655
Pneumatic placing of concrete vertically to height of 105 ft. at New York subway shaft n*507
Proportioning:
Pit-run aggregate proportioning formula. Crum formula and Edwards method. J .H. Griffith.....*399
Dangers in use of Crum and Griffith formulas. S. Walker....1 500
Discussion: J. H. Griffith and F. H. Austin 1 914
Griffith's empirical formula not safe for uniform or economical concrete. J. A. Kitts.....1 577
Planning of course in proportioning at M.I.T. R. G. Tyler.....1 577
Portland Cement Association short course on concrete mixtures.....n171
Water-cement ratio:
Flask and chart for field tests of characteristics of sand. C. M. Chapman j*955
Time element in maximum attainable strength. T. Kuo.....1 958
Ross Island bridge, Portland, Ore., concrete chuted from cars on trestle...j*248
Timing of mix:
Fruit-jars to construct hourglass for timing concrete mix. S. C. Hulse...j*623
Tremie-placed concrete:
Detroit River tunnel, tremie concreting most successful. J. L. Weller.....1 251
Truck, two-batch, for 27-E paver work (Hug Co.) n*467
Water gain and allied phenomena in concrete work, tests and explanation. H. J. Gilkey *242
Conference of State Sanitary Engineers, annual meeting in Chicago.....n961
Connecticut Society of Civil Engineers, New Haven meeting and exhibit by contractors e305, n338

CONSTRUCTION

Belt conveyors. (See Conveyors.)
Biggest fifty of 1926 construction jobs..n*301
Control of construction on scattered jobs. Duquesne Light Co.'s work orders and charts. M. R. Sumner *977
Costs:
Illinois Association of Highway and Municipal Contractors, data on growing plant charges.....e225
Costs:
Labor receiving too large proportion of construction cost? n*797
Dam construction costs and progress charts used on Androscoggin River dam. D. Patch.....*480
Day labor:
Campbell bill amended but not passed.e391
Engineering News-Record cost and volume, annual statistics.....*73
Engineering projects, major, status at end of 1926..... 64
Equipment:
Trade-ins discussed at meeting of equipment distributors n546
Floodlighting on construction work (Pyle-National Co.) n*670
Force account:
Campbell bill amended but not passed, "beginning again in day labor" ...e391
India, force account system fails in large public works program...233, 308
Plant:
Gatineau River power development construction plant *234
Illinois Association of Highway and Municipal Contractors, data on growing plant charges.....e225
Plant layouts:
Oklahoma City, new sewage plants including settling tanks, plant layout and construction *1018
Warehouses at Detroit, Toronto, Montreal, built by Parklap Inc. e716, L. C. Hammond *730
Quarter of year statistics.....e551
Railways, light, would aid jobs such as Gatineau River projects. W. C. Carey.1 578
Safety measures:
Associated General Contractors memorial fund in honor of W. E. Wood.e223
Sales price versus service in selling construction. W. T. Chevalier..... 244
Saturation in building construction, warning, and self-protection of builders. S. W. Straus.....e139
Service-contracting development e970
Value of 1926 engineering contracts by States n177
Weather forecasts aid the contractor. J. M. Weed j332
Winter:
Floor protection, concrete, in New York building. C. Boes.....*721
Warehouses at Detroit, Toronto, Montreal built by Parklap Inc. e716, L. C. Hammond *730

CONTRACTING

Service-contracting development e970

CONTRACTORS

Exhibits at Connecticut Society meeting e305, n338
Generous associates of irresponsible contractors. (A.R.B.A. paper) F. T. Sheets a118
Questionnaires aid selection of contractors (A.R.B.A. paper). F. T. Sheets.a115
Responsibility:
India's system of lists of approved contractors. H. J. Ajwani.....1 167

CONTRACTS

Biggest fifty of 1926 construction jobs..n*301
Highway contract control and engineering service (A.R.B.A. paper). L. R. Ames a115
Value of 1926 engineering contracts by states n177

CONVEYORS

Belt conveyors:
St. Louis, Mo., water-works reservoir, large portable belt conveyor handles excavation j*247
Belt unloader for hopper cars (Jeffrey Mfg. Co.) n*921
Flight conveyor speeds up brick building construction (Gifford Wood Co.).n*260
Trenching machine, attached conveyor Harnischfeger Corp.).....n1080
Cooper, H. L., consultant on Russian power plant on Dnieper River.....n375
Corpus Christi, Texas, gulf harbor and port under construction *560

COSTS

Dam construction costs and progress charts used on Androscoggin River dam. D. Patch.....*480
(See Construction, costs; Economics: Highway economics, etc.)

CRANES

Buckets:
Clamshell buckets of small capacity (Hayward Co.) n*41
Rectangular bowl bucket for light crane work (George Haiss Mfg. Co.) n*300
Clamshell crane, Fordson (Wilford Universal Power Shovel Co.).....n*1041
Crane and elevator unit built around Fordson tractor (Otis Engine Corp..).n*213
Pull shovel attachment for truck crane (Universal Crane Co.).....n*585
Shovel-crane, all-purpose (General Excavator Co.) n*547
Cuba, Central Highway, plan, and construction. E. R. Williams..e551, *558, 940

CULVERTS

Jacking culvert beneath pavement, method in El Paso County. F. E. Wilson.j*787
Jacking culvert casing under railroad tracks, for gas main at Buffalo. O. F. Flumerfelt j*953
Pipe perforated for culverts, improved (Canton Culvert & Silo Co.).....n*1041
Current meters:
All types useful, comparisons. B. F. Groat 1 370
(See Hydraulics.)

D

Dallas, Texas, bond budgeting for public improvements e180

DAMS

American Falls dam:
Cost of dam, reservoir, etc. L. C. Walker 1 292
Status at end of 1926..... 63
Androscoggin River dam, charts used to check costs and progress. D. Patch..*480
Approach velocity not factor in dam design. H. Cross.....1 500
Discussion: J. B. Hamilton and H. K. Barrows 1 *826
Arch dams:
Stevenson Creek test dam of Engineering Foundation.
Tentative conclusions from tests..450
Bitobee dam. (See Dams, Gatineau River.)
Boulder Canyon dam:
Bill in Congress, sound and unsound business e101
Hayden opposes bill—water appropriation violated n128
Mead, Dr. E., urges early action...n253
Bridgeport dam on Walker River in Nevada, spillway problem and novel solution. J. A. Beemer *108
Bull Run dam will double water supply of Portland, Ore. D. C. Henny.....*842
Colorado River:
Boulder Canyon dam. (See Dams, Boulder Canyon.)
Brush dam built annually on Colorado below Yuma *734
Dams in Arizona near Parker proposed.n1075
Chelsea dam. (See Dams, Gatineau River.)
Coolidge dam on Gila River in Arizona, status at end of 1926..... 63
Concrete:
Gatineau River power development, five concrete dams under construction *234
Conowingo dam, status at end of 1926. 63
Cushman, Lake, power project.
Dam provides large storage at low cost. B. E. Torpen.....*608
Net for steel mesh, vertical, protects intakes j*249
Wood-stave pipe line, 10-in., has suspended span of 275 ft. j*162
Deerfield River dam for Sherman development in Massachusetts, a modified hydraulic fill. e676, L. Gurney...*678
Earth dams:
Deerfield River dam for Sherman development in Massachusetts. e676, L. Gurney *678
Hemet, Calif., dam destroyed by flood..n423
Modesto District dam, leakage stopped by grouting with cement. W. H. Holmes *900
Philbrook dam, North Fork of Feather River, equipment worth $1,000 per man used on rush earth-fill project j*334
Failures:
Earth dam near Hemet, Calif., destroyed by flood.....n423
Earth dam on Maquoketa River in Iowa washed out n1000
Modesto District dam, leakage stopped by grouting with cement. W. H. Holmes *900
Mountain Dell dam in Utah, waterproofing the upstream face.....*530
Farmers Rapids dam. (See Dams, Gatineau River.)
Form points on constant-angle arch dams, method of setting. B. T. Millard *618
Gatineau River power development:
Five concrete dams under construction *234

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news

Hauling for dam building done by tractor trains *194
(See Hydro-electric power.)
Gibson dam, drainage provisions 976
Glines Canyon dam, concrete makes 70-ft. vertical drop.....j*700
Gordon Valley dam, California, spillway channel damaged by flood.....n625
Gros Ventre landslide dam in Wyoming breaks n*878, n917
Huffman dam in Ohio, shrinkage determinations. C. H. Eiffert.....*145
Hydraulic fill:
Deerfield River dam for Sherman development in Massachusetts, a modified hydraulic fill. e676, L. Gurney.*678
Shrinkage:
Huffman dam in Ohio, pipe system and shrinkage readings. C. H. Eiffert *145
Lugert dam in Oklahoma, concrete mix design. W. L. Benham.....*655
Martin dam, contractor on construction 413
Modesto District dam, leakage stopped by grouting with cement. W. H. Holmes *900
Mountain Dell dam in Utah, waterproofing the upstream face.....*530
Ohio River dam 41 and power plant at Louisville, Ky., construction plan and plant at river falls.....e760, *762
Ohio River locks and dams:
Status at end of 1926..... 63
Osage River dam, wickets thawed by steam. F. Y. Parker j*1030
Philbrook dam on Feather River, equipment used j*334
Portland, Ore., Bull Run dam will double water supply. D. C. Henny.....*842
San Gabriel dam plans adopted.....n880
McFarland, D. R., resident engineer..n881
Spillways:
Bridgeport dam on Walker River in Nevada, spillway problem and novel solution. J. A. Beemer.....*108
Test arch dam on Stevenson Creek:
Tentative conclusions from tests..... 450
Wickets at Osage River dam thawed by steam. F. Y. Parker j*1030
Wilson dam on Tennessee River, concentrated flow erodes rock below dam. H. P. Oram.....*190
Denver, Colo.:
Water and flood projects wait action.. n37
Derricks. (See Hoists and hoisting.)
Detroit, Mich.:
Bridge and tunnel to Windsor planned..n423
City to vote on international bridge...n960
Sewage system status at end of 1926.. 63
Subway, two lines to be voted on....n296
Water-works centrifugal pumps (Worthington) surpass previous efficiency records. W. Schwanhausser and W. C. Rudd *1015
Detroit Asphalt Paving Co. not monopoly, judge rules n131
Distribution census carried out in 11 cities under order of Herbert Hoover.....n1040
District of Columbia:
La Due, Col. W. B., new engineer commissioner n581
Public utility commission. President Coolidge's nominations for.....n131
Dolly for riveting H-beams in Ireland.
F. P. Terry j*622
Donaghey, J. T.: removal from office by Wisconsin State Highway Commission. n207, e224, n253, n297

DRAINAGE

Everglades drainage bond issue.....n745
Everglades drainage report.....n833
Mississippi Valley drainage project financing by federal aid suggested to Congress e969, n1037
Washington state law for creation of drainage improvement districts upheld.n668
Drawing instruments:
Rigid rule, 6-ft., may be coiled to pocket size. H. A. Ferrand.....n*964
Rule, of aluminum, folding (Lufkin Rule Co.) n378
Drawings, engineering, checking drawings and computations important. J. W. Jourdan j1032

DRILLS AND DRILLING

Drill steel car for use of crews in tunneling j*332
Drill steels, machines with large output (Brown Instrument Co.).....n*835

E

Earth fill:
Railway freight yard, Wabash R.R. at North Kansas City, fill material conveyed over road and railway.....j*786
Earth movement:
Railroad fill embankments, detector for discovering earth movement. T. M. Roberts j*332
Earth slides:
Retaining wall, multiple-arch, on Cahuenga Ave. at Indian Gulch, damaged by earth slip. F. A. Noetzli....*146
West Virginia's method of handling landslides on mountain roads. e431, H. J. Spelman *434

EARTHQUAKES

Calexico and Mexicali, buildings damaged by earthquake *572
Design of buildings for earthquake resistance, Mitsui Bank Building in Japan. e1008, J. W. Pickworth and W. H. Weiskopf *1010
Fire Underwriters of Pacific, Board of, study of earthquake survey of buildings e760
Rating buildings for liability to earthquake damage, plan of Fire Underwriters of the Pacific. E. W. Bannister *1052
San Francisco building code earthquake requirements being revised.....e677
San Francisco engineers not unmindful of earthquake hazard. C. H. Snyder....l 995
Seismograph and the engineer. N. H. Heck 984

ECONOMICS

Indianapolis water case, reproduction-cost-new theory. J. Jacobs..... l 33
Labor receiving too large proportion of construction cost? n*797
Water rates of Milwaukee upheld by Wisconsin Railroad Commission..e433, 451
Engineer:
Transit slave, is the engineer...e345, n376

ENGINEERING

Civil engineering in oil fields. (See Oil field engineering.)
Detroit economizing on engineers shows need of engineering publicity.....e595
North Jersey District Water Supply Commission supplants its own engineers and practices secret engineering.e931
(See Aqueducts; Pipe and pipe lines; Water supply.)
Engineering Council:
Public works department bill drafted.. n131

ENGINEERING EDUCATION

American Association of Engineers New York Chapter gives evening engineering courses e715, n747
Columbia University, President Butler would widen usefulness of engineering training n295
Constructors' and engineers' demands call for what kind of education?.....e141
Correspondence schools:
American Association of Engineers would fight misleading correspondence schools n295
Highway school for New Mexico highway department employees e1009
Hydraulic scholarship, suggested by J. R. Freeman and sponsored by American Society of Civil Engineers.....n422
Iowa State College to have chemical engineering building n93
Johns Hopkins education plan.....n581
Nevada University, Mackay Mining Building enlarged n503
Lehigh University receives a million from J. W. Packard.....n295
Massachusetts Institute of Technology organizes municipal and industrial research divisions n37
Northwestern University makes large Chicago additions n666
Purdue University gets more buildings.n879
Research graduate apprenticeships open at University of Illinois.....n294
Stanford may drop first two years from curriculum n832
Sewage operators' course planned in New Jersey institutions n37
Summer schools for engineering teachers to be held at Cornell and Wisconsin Universities n825, 1076
Syracuse University changes degree awards n461
Westinghouse employees given credit at University of Pittsburgh n542

ENGINEERING ETHICS

Free professional service. W. N. Brown..l 166
Iowa Engineering Society adopts engineering service specifications.....n294
Unionism of engineers discussed, and defense of unionized engineers..... e56
S. C. Ames and A. Judwin.....l 206
Engineering Foundation:
Officers elected n423
Engineering Institute of Canada:
Decary, A. R., elected president.....n375
Engineering Literature:
Book reviews. (See Book reviews.)
Reform and standardization of engineering literature sponsored by Des Moines society and others e345
Engineering museum. (See National Museum of Engineering and Industry.)
Engineering News of 1902, zeppelin and photograph transmission by wire items of news e636

ENGINEERING NEWS-RECORD

Construction costs, index numbers 1903-1926, and materials prices and labor rates. March 3 contents, and page.. 429
Cost and volume construction statistics, annual and construction prospects for 1927 .....*73

ENGINEERING SOCIETIES

Co-ordination of local technical organizations 897
Curbing the speaker. C. R. Henderson..l 740
New York engineers plan state organization n254
Time limits for speakers.....e512
Engineer's wife writes observation—"And far away", e511, M. G. E..... 520

ENGINEERS

Donaghey, J. T., removal by Wisconsin Highway Commission 207, e224, n253, n297
Fees:
County sanitary engineer, K. B. Allen, in Montgomery County, Ohio, loses on appeal for fee sought from county n95
Licensing:
New York engineers consider license law enforcement n422
Pennsylvania license law held unconstitutional e180, n208
New law restores licensing of engineers 907
Virginia—St. Louis engineers' letter quotes false rumor on registration in Virginia. A. J. Saville.....l 419
Wisconsin engineers postpone registration bill n424
New York City engineers organizing to seek fair salary scale.....e635
North Jersey District Water Supply Commission action on Wanaque aqueduct controversy. (See Aqueducts, or Pipe and pipe lines, Wanaque aqueduct.)
Registration:
St. Louis, engineers, fifteen, discuss present figures and status.....l 250
Discussion—license laws to exclude incompetents. A. O. Bosshard..l 540
(See Engineers, licensing.)
Salary:
Highway engineers' salary, one state bill to reduce and another state proposes increase e389
New York City, Union of Technical Men, Local 37 plans asking better salaries n746
Unionism of engineers, discussion, and defense of unionized engineers..... e56
S. C. Ames and A. Judwin.....l 206
Wife of engineer writes observations "And far away," e511, M.G.E..... 520

ENGINES

Diesel engines:
Small Diesel engine generating sets (Fairbanks, Morse & Co.).....n379
Tachometer, hand, for checking engine and motor speeds (O. Zernickow Co.) n*884
Two-cylinder engines with refinements (Novo Engine Co.) n*467
Water-works gasoline pumping engine (Buffalo Gasoline Motor Co.).....n*884
Ericson, John, city engineer of Chicago, death n665, n*707
European debt settlement, propaganda against by Columbia and Princeton...e471
Everglades survey is proposed.....n127
(See Drainage.)
Excavating machinery:
Excavator improved by dragline and backfiller attachment (Insley Mfg. Co.) n*548
Hoe, trench, equipped with gooseneck boom (Harnischfeger Sales Corp.)....*964
Shannon River power development in Ireland, multiple-bucket excavators used on canal work. J. K. Prendergast *554, e636
Trenching machine with conveyor (Harnischfeger Corp.) *1080

F

Fences, copper wire with steel core (Copperweld Steel Co.) n631

FIRES AND FIRE PREVENTION AND PROTECTION

Fire burning since 1849 at water-works pumping station, York, Pa. 453
Hydrants:
Frost protection below ground, of fire hydrants. H. E. P. Duncan..... l 33
National Fire Protection Association is going too far in trying to establish fire prevention clean-up week.....e264
National movement to reduce fire waste e511, n543
Small community, fire-fighting facilities improvement. D. E. Davis.....j869
Sherry-Netherlands fire in New York City shows hazard of new type in sky-scrapers e637, n*665
Two fire-prevention weeks wanted. F. C. Stover .....l 578
Fitzgerald, Desmond, art collection...e636 863

FLOODS AND FLOOD CONTROL

Colorado River:
Flood danger in the Colorado delta—channel construction the only safeguard. P. M. Enteman.....*532
Rodriguez levee, 16 miles long, built under rush construction against flood menace *1070
Indianapolis, Ind., flood protection works extended 361
Iowa flood of cloudburst type damaged river structures *405
Leningrad, Russia, sea flood control and dam plan. V. E. Liakhnitsky..... *10
Los Angeles County flood control:
Board of engineers, F. H. Fowler, C. D. Marx and C. H. Paul, reports on flood control projects e551, 570
Engineers board reviews and criticizes plan n501
Henny, D. C., appointed on board....n745
Reagan, J. W. and two others, on consulting board n544
Status at end of 1926..... 62

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news

Mississippi River Flood:
Atchafalaya basin flooded n*829
Breaks all records e835
Caernarvon levee breached by engineers. R. B. McWhorter n*742
Spillway gives relief at New Orleans. A. M. Shaw l*912
Crest passes Vicksburg n*741
De Soto's story of flood of 1543 851
Gage of 52.8 ft. at Cairo on March 25 n579
Great Lakes drainage fallacy—a drop in the bucket e800
June rise caused by floods in tributaries n959
Louisiana threatened n*789
McCrea levee break floods region between Atchafalaya and Mississippi n*876
New Orleans and vicinity, heavy rainfall coincident with April floods... *697
Rain and gage heights, early April records in Mississippi Valley n664
Recession of flood is slow n915
Record stages, levee breaks ... e675, n*702
Rise, or second flood, checked by spreading into Tensas basin n997
Solutions:
Army engineer board to recommend spillways n915
Calm thought needed e931
Chicago meeting discusses flood control n960
Chief of Engineers outlines flood problem and discusses levees, reservoirs, spillways 980
Data on which solution must be based. J. C. Hoyt ..... l 956
Engineering board:
Army and civilian engineers should compose board, and reasons .. e841
Full study of Mississippi needed. C. A. Morse ..... l 826
Jadwin, General, asks that full study and report be made n961
Levee boards ask aid n1075
President should appoint an engineering commission to study protection e761
National Drainage Association asks flood relief n1037

Floors:
Hangers for non-sagging floor construction (Blaw-Knox Co.) n*836

Florida hurricane:
Building official studies faults in materials, anchorage and bracing. L. F. Fletcher 281
Force account (See Cambell bill; Construction.)
Forestation:
Reservoir silting prevention by forestry.. 573
Formwork. (See Concreting; Highway construction.)

FOUNDATIONS
Carquinez Strait bridge:
Caisson sinking in deep water, novel methods. e471, G. J. Calder *484
Edwardsville, Ill., sanitarium building raised and leveled after irregular settlement *528
Garage in Philadelphia, reinforced concrete girder footings carry eccentric columns j*415
Grillages distributing column loads to substructure, leveling. H. M. Naylor j*786
Ohio Bell Telephone Building on difficult mat foundation in Cleveland sand and clay. R. P. Wallis *364
Shores and shoring:
Steel and wood adjustable shores. H. G. Martin design j*495
Soil resistance due to viscous flow. E. deM. Vieira l*995
Underpinning:
Sinking building, Naval Aircraft factory, Philadelphia Navy Yard, underpinned by unusual procedure. E. D. Graffin *988
Water-bearing soil in White Plains, N. Y., foundation experiences. J. Feld j623
Furnace, blast. (See chimneys.)

G

GARBAGE AND REFUSE DISPOSAL
Incinerators:
Birmingham, Ala., three incinerators to be built n464
Los Angeles, Calif., plant disposes of non-combustible rubbish *526
San Francisco, Calif.:
Never-used garbage incinerator. M. M. O'Shaughnessy ..... l 624
San Francisco, Calif.:
City to lease garbage plant—sea dumping planned n627
Garbage problem in dalliance e346

Gas:
Compressed Gas Manufacturers' Association meets n1078
Illuminating gas used for metal cutting (General Electric Co. plants) n*259
Gasket for water pipes, made of baby-buggy wheel tires, H. M. Naylor..... j*952
Gasoline:
Cement plaster in floor of reservoir near Los Angeles removed by gasoline fire. E. R. Oden j*495
Tax:
California gasoline tax raised from 2 to 3 cents n916
Gear units, single reduction, new (R. D. Nuttall Co.) n*426
Goodell, John M., death n1035
Appreciation. G. A. Johnson ..... l 1073
Tribute by E. J. Mehren e1045
Government:
Local government costs have increased more than federal but they pay for increased service e932

GRADE CROSSING ELIMINATION
Elmira, N. Y., grade crossing to be eliminated n918
New York State:
Program of grade crossing elimination and some changes n579
Railway grades at grade separations, tabulation 983
St. Louis, Mo., grade crossing suit not settled by Supreme Court n253
Grandstands:
Philadelphia baseball grandstand failure due to decay n916
Grating of welded construction for floors, treads, etc. (Blaw-Knox Co.) n*507
Grease cup "Hex-top" (Link-Belt Co.) ..n*712
Grillages distributing column loads to substructure, leveling. H. M. Naylor j*786
Groins at Long Beach, L. I., damaged by heavy seas e390, *410
Discussion. H. V. Campbell ..... l 540
V. Gelineau and C. Weber ..... l 912
Guard rails. (See Highways.)
Guniting. (See Concreting.)

H

Harris, Admiral F. R., retires and enters consulting work n627
Hatton, T. C., resigns as chief engineer of Milwaukee Sewerage Commission n131
Herminghaus case, water rights:
California Supreme Court decision e181, 204
Case may be appealed n746
Decision defended "Ami du Movement" l 371
Water-right law of California may be amended as result of case n879
(See Irrigation; Water resources.)
Highway accidents:
Connecticut statistics for 1926 ..... e390
Ohio marking of scenes of fatal accidents by white crosses j498
Highway administration:
Wisconsin, new highway organization recommended, following Donaghey removal n579

HIGHWAY CONSTRUCTION
Algeria (French), travel notes on highway building. W. W. Crosby *524
Asphalt binding replaces water binding on arid road work in Texas. L. R. Allison 990
Bituminous:
Rock asphalt road construction with new devices, in Tennessee. W. L. Moore *12
Boston Post Road:
Formwork, securing steel forms over old pavement. S. P. Sears j165
Topping and widening. C. G. Nichols *322
Brazil highway work, American contractors wanted n544
Cameron Pass highway in Colorado. A. B. Collins *6
Canyon highway building—Cariboo Road in British Columbia. P. Philip *142
Cariboo road in British Columbia, canyon highway building. P. Philip *142
Colorado—Cameron Pass highway built. A. B. Collins *6
Connecticut—Boston Post Road topped and widened. C. G. Nichols *322
Concrete:
Crack regulation, North Carolina survey. C. E. Turnbull *770
Cutting mixing and curing time on concrete road work (A.R.B.A. paper) a118
Expansion joints, contraction stress and elastic limit. E. A. Keator ..... l 370
Forms improved—Carr form (Lakewood Engineering Co.) n*965
Reinforcing steel placing by device (National Steel Fabric Co.) n*39
Wisconsin pavement section using doweled but unreinforced joints on four-lane flexible slab. e345, F. M. Balsley *361
Convict labor, California's three years of experience in paying *241
Earth roads:
Improved by thin stone surfacing. A. T. Goldbeck a*813
Ohio develops traffic-bound roads of gravel, limestone or slag at low cost. e887, H. J. Kirk *908
Expenditures by states for 1927, Bureau of Public Roads estimate e511
Georgia coastal highway built by six counties. e676, F. M. Garnett *690
Hutchinson River parkway drive, undercrossing under New York Central embankment, arch bridge design cheaper than girder. A. G. Hayden.. *310
Los Angeles, Calif., Pico Boulevard built to Ocean Beach. e595, J. C. Shaw ... *603
Mileages:
Government road construction statistics from 1904 through 1925 ..... *16
Ohio develops traffic-bound roads of gravel, limestone or slag at low cost. e887, H. J. Kirk *908
Oil to stick to road, not to automobile, needed e888
Pennsylvania—Ridgway-Lock Haven highway built. W. H. Connell *188
Pico Boulevard, in Los Angeles, superhighway to Ocean Beach. e595, J. C. Shaw *603
Ridgeway-Lock Haven highway in Pennsylvania, construction. W. H. Connell *188
Slag-clay road, in Delaware, concrete mixer spreads slag. S. Knopf 846
State blue ribbon projects of 1926:
Colorado — Cameron Pass Highway, A. B. Collins *6
Connecticut—Boston Post Road, topping and widening. C. G. Nicholas. *322
Georgia—coastal highway built by six counties. e676, F. M. Garnett *690
Ohio—developing traffic-bound roads at low cost. e887, H. J. Kirk *908
Oklahoma—convicts construct a highway in Arbuckle Mountains. A. O. Walker *1058
Pennsylvania — Ridgway-Lock Haven highway. W. H. Connell *188
West Virginia—handling landslides on mountain roads. e431, H. J. Spelman *434
Steam used to remove tar-felt and sand pavement in repaving viaduct over tracks at Rockford, Ill. L. T. Sogard j*28
Texas, Harris County begins $7,000,000 highway construction n210
Township and county roads in Indiana. B. H. Petty *22
Water supply for road work, Pennsylvania, tables give pipe line data.... j1032
West Virginia: handling landslides on mountain roads. e431, H. J. Spelman *434
Widening roads:
Boston Post Road, in Connecticut, topping and widening. C. G. Nichols.. *322

HIGHWAY DESIGN
Bituminous:
Stone (block) base for asphalt road in New South Wales. R. W. Parkhurst *940
Chicago, Ill., superhighway design wins prize *476
Concrete:
Crack control in concrete roads, reinforcement, cross joints, planes of weakness, panel construction. C. N. Conner 1022
Crack control, longitudinal joint system (Heltzel Steel Form & Iron Co.) n*1070
Crack regulation, North Carolina survey. C. E. Turnbull *770
Deterioration, causes determined by census of North Atlantic highways. e799, J. S. Bixby 810
Joints:
Ball and socket bond for longitudinal joint j*954
Cross-joints, spacing theory and practice. R. M. Green 641
Cross joints, spacing theory considering moisture, temperature, stresses. W. W. Zass 24
Expansion joints:
Contraction stress and elastic limit. E. O. Keator ..... l 370
Longitudinal joint system for crack control (Heltzel Steel Form & Iron Co.) n*1078
Staggered joints on two-strip pavement, Wichita Falls, Tex. j*701
Wisconsin pavement section using doweled but unreinforced joints on four-lane flexible slab. e345, F. M. Balsley *361
Priority of use of this section on Detroit superhighway. G. C. Dillman ..... l 540
Curbs:
Ada, Ohio, job, wood brace holds curb forms. J. M. Weed j*497
Joints:
Wisconsin pavement section using doweled but unreinforced joints on four-lane flexible slab. F. M. Balsley e345, *361
Priority of use of this section on Detroit superhighway. G. C. Dillman ..... l 540
Traffic-bound roads, gravel, limestone or slag, developed in Ohio at low cost. e887, H. J. Kirk *908

HIGHWAY ECONOMICS
Brick roads, Cuyahoga County, Ohio, maintenance costs *14
Haul distance reduction saves money (A.R.B.A. paper). T. W. Allen a118
Load factors too low in highway construction plant (A.R.B.A. paper). J. L. Harrison 116
Motorist taxation—who are "motorists"? e512
Pennsylvania, maintenance of roads, efficiency measured by unit costs. W. H. Connell 490
Politics eyes the highways e933
Subgrader work, checking up for payment (A.R.B.A. paper). J. T. Ellison a118
Township and county road costs in Indiana prove township roads should be merged with county. B. H. Petty *22
Unit prices bid, to U. S. Bureau of Public Roads, on road materials and operations n509
Highway Education:
New Mexico holds school for highway department employees e1009

HIGHWAY ENGINEERING
Donaghey, J. T., removal by Wisconsin State Highway Commission.... n207, e224, n253, n297
Salaries of state highway officials, bill to reduce in one state, increase in another e389
Wisconsin, new highway organization recommended following Donaghey removal n579

HIGHWAY EQUIPMENT
Asphalt paving equipment:
Testing machine to test stability of asphalt paving mixtures (Asphalt Association). n*39
Blower road cleaner used in Virginia. J. J. Forrer j*29

Cold patch material that will not freeze (Headley Good Roads Co.) n467
Composite machine embodies tractor, roller, grader and scarifier (Gray Giant Co.) n*213
Diesel engine for road machinery, light-weight (Foos Gas Engine Co.) n*98
Drag, drop-leaf, for work on shoulders, in California j*30
Dump truck, low-mounted, with special body for California highway maintenance n1080
Forms for concrete curb and gutter (Metal Forms Corp.) n*41
Gasoline roller, new, 8-ton (Erie Machine Shops) n*712
Graders:
High lift of new grader (Rome Mfg. Co.) n1003
Leaning-wheel grader of new design (Gallion Iron Works) n*299
Mechanical control grading machine (Ryan Car Co.) n*41
Patrol grader, motor (Russell Grader Co.) n*965
Power grader for light grading (Avery Power Machinery Co.) n*547
Scarifiers and cabs for improved motor graders (Austin Western) n632
Incline for removal of slides, used in California j*31
Joint pouring machine (Heltzel Steel Form & Iron Co.) n*796
Motorization of equipment in Wisconsin. 975
Pumps, force pump, high pressure (Domestic Engine and Pump Co.) n*39
Road Show exhibits showing trends in highway equipment n133, n*173
Rollers:
Motor rollers in 5 and 10-ton sizes (Huber Mfg. Co.) n*40
Scrapers:
Tractor-operated Fresno scraper (Western Wheeled Scraper Co.) n*584
Selection and care of highway maintenance equipment (A.R.B.A. paper). W. H. Root a117
Shovels:
Idaho home-made gasoline shovel "Hoosis" to handle small yardages. C. J. Chaffins j*27
Slag spread on slag-clay road by concrete mixer, in Delaware. S. Knopf .*846
Snow removal equipment. (See Snow removal.)
Spreader for stone and chips (Good Roads Co.) n*41
Steam device to remove tar-felt and sand pavement in repaving viaduct over tracks at Rockford, Ill. L. T. Sogard j*28
Subgrade tester, all-steel, uniformly used on Pennsylvania roads j*1031
Templet for subgrade testing, all-steel used on Pennsylvania roads j*1031
Tractors. (See Tractors.)
Trailers. (See Trailers.)
Truck, two-batch, for 27-E paver work (Hug Co.) n*467
Truck, with road builder's body, 1½ to 2 ton size (Garford Truck Co.) *467
Unloading tank cars, upright boiler used j*31

HIGHWAY FINANCING

Arkansas road reform e265, n294
California, bond issue of $25,000,000 for road structures proposed n35
Expenditures by states for 1927, Bureau of Public Roads estimate e511
Missouri Pacific Ry., wins reduction of assessment by Arkansas district n668
North Carolina authorizes bond issue of thirty million n461
Politics eyes the highways e933
Registration fee on motor cars necessary for proper taxation to pay for highways. e716, J. W. Martin.....*722

Highway impact:
Overloaded trucks on New York City streets e303

Highway location:
New Jersey plan fixes routes by traffic flow data. W. G. Sloan..... *32

Right-of-way:
Legislation toward wider rights-of-way, as in New Jersey e263

HIGHWAY MAINTENANCE

Asphalt repair plant improved (Chausse Oil Burner Co.) n*835
Blower road cleaner used in Virginia. J. J. Forrer j*29

Brick roads:
Cuyahoga County, Ohio, maintenance costs of brick roads *14
Cold patch material that will not freeze (Headley Good Roads Co.) n467

Concrete:
Deterioration, causes determined by census of North Atlantic highways. e799, J. S. Bixby 810
Concrete joints cleaned with air before filling joints. W. H. Rhodes j*417

Costs:
Pennsylvania maintenance of roads, efficiency measured by unit costs. W. H. Connell 490

Earth roads:
Kansas treats earth roads with sand to assure all-weather use. W. T. Hole j27
"Frost boils" eradicated with live steam, Minnesota practice. W. F. Rosenwald j*29

Gravel roads:
Louisiana methods with bladers j31
Ice-breaking machine (Chas. Hvass) n*97
Kansas roads "blowing up" remedied by cutting grooves in paving j165
Rhode Island maintenance practice. G. H. Henderson j*28
Selection and care of highway maintenance equipment (A.R.B.A. paper). W. H. Root a117
Township and county roads in Indiana. B. H. Petty *22

Highway marking:
Ohio marking of scenes of fatal accidents with white crosses j498
Uniform system of marking for country, gradually reaching completion e931

Highway planning:
Arkansas road reform leading to state control e265, n294

Highway research:
Costs:
Government statistics of road construction from 1904 through 1925 ..... *16
Crack control in concrete roads, experiments with reinforcement, cross joints, planes of weakness, panel construction, C. N. Conner 1022
Joints, cross, in concrete roads, spacing theory considering moisture, temperature, stresses. e24, W. W. Zass... 24

HIGHWAYS SIGNS

Metal signs embossed made by North Carolina equipment division. L. R. Ames j*30

Highway statistics:
Government road construction statistics (mileages, etc.) from 1904 through 1925 ..... *16

HIGHWAY TRAFFIC

Conviction of Illinois village constable of extortionate fines e677
New Jersey traffic flow data used in planning road-system location. W. G. Sloan *32
Oregon limitation of weight carried on federal-aid roads upheld by U. S. Supreme Court n668

Highway transportation:
Motor bus as means of highway transportation. C. W. Stocks *80

HIGHWAYS

Algeria (French), travel notes on highway building. W. W. Crosby.....*524
Boston Post Road:
Formwork, securing steel forms over old pavement. S. P. Sears j165
Topping and widening. C. G. Nichols *322
Cameron Pass highway in Colorado. A. B. Collins *6
Cariboo Road in British Columbia, canyon highway building. P. Philip *142
Concrete:
Tests:
Arlington, Va., 40 slabs tested. J. T. Pauls n398
Cuba, new Central Highway, contracts, design, construction. e551, E. L. Williams *558, 940
Georgia coastal highway built by six counties. e676, F. M. Garnett *690
Guard rails:
Mountain private road protected by welded steel pipe guard rail.....j623
Politics eyes the highways e933
Japan builds superhighway from Kobe to Osaka. H. Sakakibara *272
Los Angeles, Calif., Pico Boulevard built to Ocean Beach, e595, J. C. Shaw ...*603
Maryland plans eastern shore boulevard 28 miles long n422
New York State, Gov. Smith urges huge road building program n34
Snow-line roads to avoid blockades being constructed in West e969
Ohio develops traffic-bound roads of gravel, limestone or slag at low cost. e887, H. J. Kirk *908
Oklahoma, Arbuckle Mountains highway built with convict labor. A. O. Walker *1058
Pennsylvania: Ridgeway-Lock Haven highway. W. H. Connell *188
Pico Boulevard, in Los Angeles, superhighway to Ocean Beach. e595, J. C. Shaw *603
Ridgeway-Lock Haven Highway in Pennsylvania. W. H. Connell *188
Right-of-way:
Legislation toward wider road rights-of-way, as in New Jersey e263
State blue-ribbon developments of 1926 (series of articles). (See Highway construction, state blue ribbon developments.)
West Virginia: handling landslides on mountain roads. e431, H. J. Spelman..*434
Three-lane highways urged for war. R. S. Tilden l540

HOISTS AND HOISTING

Crane and elevator unit built around Fordson tractor (Otis Engine Co.) ..n*213
Derricks:
Platform derrick with electric hoisting equipment for freight yard use (American Hoist & Derrick Co.) ..n*340
Double-drum hoist with two speeds (S. Flory Mfg. Co.) n*40
Electric hoist with various applications (American Engineering Co.) *965
Mechanical hoist provides high-lift and 70-deg. dump (Wood Hydraulic Hoist and Body Co.) n*260

Holding companies:
Control proposed in New York State e180, n210
Federal Trade Commission recommends inquiry n374

Hourglass, made of fruit jars, for timing concrete mix. S. C. Hulse j*623

Housing:
Canadian housing and land development planning for economy. A. G. Dalzell.l740
Hurricanes:
American Society of Civil Engineers making study of hurricane action ...e139

HYDRAULICS

Aqueduct, Winnipeg, Canada, flow tests by salt velocity method. F. S. Adamson and J. H. Grant *693
Concentration of flow erodes rock below Wilson dam on the Tennessee River. H. P. Oram *190
Current meters:
Price current meter: serviceability vs. scientific design. G. H. Matthes ..l 126
All types useful, comparisons. B. F. Groat l370
Dams, approach velocity not a factor in dam design. H. Cross .....l 500
Diameter of water and pipe lines, economic formula. R. W. Powell and J. W. Ledoux .....l 499
England, leakage test of large cast-iron water main. T. F. Young j*1033
Friction losses in tar-coated and cement-lined cast-iron pipe (A.W.W.A. paper). M. L. Enger a986
Hydraulic jump formulas, correction for J. C. Stevens' formula of 1925. F. S. Bailey .....l 126
Hydraulic jump formulas for regular and irregular channel. J. C. Stevens and F. S. Bailey .....l *538
Roaring Creek, Pennsylvania, utilization of water of stream almost complete. F. Gannett 1067
Sewer design—storm sewers—and relation to rainfall-runoff analysis, as developed at Columbus, Ohio. J. A. Rousculp *270
Sewer hydraulics. (See Sewer construction, Sewer design; Sewers.)
Smoothing rough rock channel, Sals Creek, to increase capacity. C. E. Ramser *685
V-notch weir measurements, least error when angle is 90 deg. M. P. O'Brien.j1030

HYDRO-ELECTRIC POWER

Alaska, International Paper Co. asks permit to develop power on Ravillagigedo Island n37
Allegan, Mich., private versus municipal development n628
Balch project in California:
Penstock, high-head, of banded pipe *406
Penstock turnbuckles simplify fastening heavy casting to timber cradle j*415
Boulder Canyon project:
Bill in Congress, sound and unsound business e101
Demands of states show plain greed e179
Government or private development of power possible under bill n131
Hayden opposes bill—water appropriation law violated n128
Boulder dam project, Survey commission named by Secretary Work n582
Canadian water power increase 1034
Carillon Rapids on Ottawa River, Canadian government will not renew lease n833
Clearwater River in Idaho, power possibilities 531
Colorado River:
Boulder Canyon project. (See Hydro-electric power, Boulder Canyon.)
Congress passes bill directing Federal Power Commission to issue no permits for power from Colorado River n464
Pinedale, Wyo., small plant licensed n376
Connecticut River, Northern Connecticut Power Co. applies for permit to construct dam and plant n464
Connecticut River project, question of locks in new dam n376
Conowingo project:
Dam construction, status at end of 1926 63
Cove Creek on Tennessee River, foundation conditions to be investigated ...n628
Cushman Lake project for Tacoma, Wash., provides large storage at low cost. B. E. Torpen *608
(See Dams, Cushman.)
Dnieper River plant, Hugh L. Cooper consultant for Russian Soviet n375
Gatineau River, power development:
1—Three plants under active construction *151
2—Heavy hauling for dam building done by tractor trains *194
3—Analysis of construction plant for five concrete dams *234
Gila River, R. H. Woods makes application for permit, five power houses in project n464
Herminghaus water rights case:
California supreme court denies power company right to store waters that flood lands of riparian owners below e181, 204
Case may be appealed n746
Decision defended. "Ami de Mouvement" .....l 371
Water-right law of California may be amended as result of case n379
Holston River development, two plans n37
Indian dams produce hydro-electric power as well as aid irrigation. C. H. Bowers .....l 469
Industrial plants and mills, requirements of steam or electric power 519
Iowa state power conference held at University of Iowa n626
King's River development, penstock sections handled by use of carriage and of a backing-up-hammer. D. McFarland j*498

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news

Licenses:
Alabama Power Co. renews application for development at Lock 17, Warrior River n1038
Federal Power Commission issued 51 licenses in year n1038
Maine legislature defeats export of power to New Brunswick n667
New York State:
Governor and legislature disagree over method of developing state's power sites n461
Power Authority, like Port Authority, proposed by Governor Smith n35
New form of government e472
Power Authority bill presented ... n170
Killed by legislature n541
Power survey bill vetoed by governor n582
Ottawa, Mattawa and French Rivers, power possibilities bring controversy on old canal project n462
Pacific Coast developments, status at end of 1926 62
Penstock practice in Europe, design fabrication and testing. e716, O. Reed *718, *773
Plants:
Conowingo plant:
Generator brackets, arc-welded (Westinghouse) n*927
Gatineau River, three plants under active construction *151
(See also Hydro-electric power, Gatineau River.)
Logan, Utah, municipal hydro-electric power plant rehabilitated. E. Schaub *276
Nebraska, small hydro-electric plants' value shown. e1007, A. C. Arend. . *1026
Ohio River dam 41 and power plant at Louisville, Ky., construction plan and plant at river falls e760, *762
Rogue River plant of California-Oregon Power Co., work started n92
St. Regis River, near Potsdam, N. Y., plant to be built n791
Tallassee River, Upper, plant of Alabama Power Co., to be reconstructed n92
Turbine runners, iron or steel, comparative costs and efficiencies e513
Politics connected with water power noted in N.E.L.A. report and other phases of development e1046
Potomac River power development proposed n877
Priest Rapids on Columbia River, license of Washington Irrigation & Development Co., two-year extension for construction asked and granted ... n376, n464
River power resources rating standards adopted by Engineering Standards committee e676, 684
Saguenay River power:
Status at end of 1926 64
Salmon River, 175,000 hp. possible 279
Saluda River in South Carolina:
Large power plant projected by Lexington Water Power Co. n464
So large that federal commission may take jurisdiction n918
Seattle application for license on Skagit River development n171
Shannon River water powers being developed by Irish Free State. J. K. Prendergast *554, e636
Canal excavators of Europe and America compared e636
Sherman development in Massachusetts, Deerfield River dam a modified hydraulic fill. e676, L. Gurney..... *678
Steam or electric power requirements of industrial plants and mills 519
Transmission lines:
Narrows at Puget Sound, cable of, 6,241-ft. span painted..... j*416
Transmission tower, Blaw-Knox, tested. n1000
Turbo-generator for isolated power and lighting (Pyle-National Co.) n*1003
U. S. water power increases 544,000 hp. 723
Yosemite Power-application for developments on Tuolumne River n668

I

Ice cakes by melting lower concrete slab of St. Petersburg, Florida, municipal pier bandstand. E. A. Nordstrom j*698
Illinois Society of Engineers, annual meeting n95, n207
Illinois waterway, status at end of 1926 .. 63
Immigration statistics 696
Incinerators. (See Garbage and refuse disposal.)
India:
Force account system fails on public works program 233, 308
Indianapolis, Ind., water case, reproduction-cost—new theory. J. Jacobs ..... l 33
Intakes:
Chippawa intake found not to infringe Groat Patent n421
International Chamber of Commerce, meeting at Stockholm. E. J. Mehren n1074
International Boundary Commission, American Section. L. M. Lawson appointed. n1038, e1045
International Economic Conference at Geneva:
American business goes to Geneva. E. J. Mehren 782
American ideas prominent. E. J. Mehren 949
Geneva conference comes to an end. e839, E. J. Mehren 864
Geneva meeting is one of importance .. e595
Mehren, E. J., to report conference, and names of delegates appointed by President Coolidge n581
World's economic ills diagnosed. E. J. Mehren n828
International Navigation Congress meets in Cairo, Egypt, and acts on many subjects n210
International Testing Materials Congress to be revived n503
International Water Commission negotiations on Mexican boundary water delayed n1036
INTERSTATE WATER COMPACTS
Colorado River compact:
Utah withdraws n169
Delaware River compact:
Second compact drafted n131
Fate still uncertain n542, 581
Iowa Engineering Society, adoption of service specifications n294
IRRIGATION
American Falls dam on Snake River in Idaho:
Status at end of 1926 63
Boulder Canyon dam bill:
Bill in Congress Sound and unsound business e101
Hayden opposes bill—water appropriation violated n128
Boulder dam project, Survey commission named by Secretary Work n582
Colorado River delta, conditions and needs, views from Imperial Valley, of a Bureau of Reclamation engineer, and a land company man e432, *439
Future of irrigation. F. D. Farrell.... l 1034
Future of irrigation and questions of alkalinity and waterlogging e888
Herminghaus water rights case:
California supreme court denies power company right to store waters that flood lands of riparian owners below e181, 204
Case may be appealed n746
Decision defended. "Ami du Mouvement" ..... l 371
Water rights of California may be amended as result of case n879
Indian irrigation dams, correction—dams produce also hydro-electric power. C. H. Bowers ..... l 460
Nile River storage reservoirs and irrigation plan on White Nile. C. W. Smith l 419
North Platte River water division legislation n424
Priest Rapids project on Columbia River, two years more for construction.n376, n464
Rio Grande development project in New Mexico. R. G. Hosea 400
Roseau River drainage system in Minnesota and Manitoba, United States and Canada to consider n424
Sacramento valley irrigation line, corroded pipe repaired with gunite. R. G. Wadsworth j*496
Swing-Johnson bill and Boulder Canyon dam Mead, Dr. E., urges early action n253
Isaak Walton League questionnaire, four hundred questions e264
Italy:
Economic situation in Italy. E. J. Mehren 1024
Mussolini heads up Italy's productive forces. E. J. Mehren 1055

J

Japan:
Koe-Osaka superhighway, construction. H. Sakakibara *272
Railway train ferry between islands. H. Nawa *148
Jetties:
Groins, at Long Beach, L. I., damaged by heavy seas e390, *410
Discussion. H. V. Campbell ..... l 540
V. Gelineau and C. Weber ..... l 912
Joists, light, of steel and wood have many advantages (Macomber Steel Co.)....n*1079
Joseph Dixon Crucible Co., 100th anniversary n964

K

Kansas Engineering Society, annual meeting n210
Kansas Water Works Association, meeting, school, and affiliation with national society n170
Kittredge, G., retires as New York Central chief engineer n131

L

Labor:
Convict labor:
California's three years' experience in paying convict labor on road work . *241
Oklahoma highway built with convict labor. A. O. Walker *1058
Day labor and force account. (See Construction.)
New York subway contract, prevailing wage clause upheld e390
Strikes:
English Trades Union Bill against strikes e759
Stone producers win decision that strikes against "unfair" cut stone are illegal n626
LAND RECLAMATION
Bill to release government from continuing contracts under negotiation by Interior Secretary with districts n171
Clearing machine tractor-operated (John Waldron Corp.) n*671
Colorado River delta, conditions and needs, views from Imperial Valley, of a Bureau of Reclamation engineer, and a land company man e432, *439
Colorado River delta levee, Rodriguez, 16 miles long, built under rush construction *1070
Everglades drainage report n833
New Jersey meadows, report on reclamation n170
Nile River storage reservoirs and irrigation plan on White Nile. C. W. Smith ..... l 419
North Platte River water division legislation n424
Relief policy of reclamation officials. . .n1038
Rio Grande development project in New Mexico. R. G. Hosea..... 400
Roseau River drainage system in Minnesota and Manitoba, United States and Canada to consider n424
Tax-refunding plan for reclamation areas sought in Missouri n294
Weber-Provo project in Utah includes building of Echo reservoir..... 355
Lath, metal, makers report on simplification program n1078
Leningrad, Russia, sea flood control and dam plan. V. E. Liakhnitsky..... *10
Licensing. (See Engineers, Licensing; and Engineers, Registration.)
Lighting:
Acetylene lighting unit, portable (Carbic Manufacturing Co.) n340
Lime:
Lime and plaster-of-Paris studied by X-ray 401
Lindbergh, Captain, the valiant..... e839
Loading:
Bulk materials loading machine for use at box cars (Stephens-Adamson Mfg. Co.) n*547
LOCOMOTIVES
Argentine port, locomotives landed notwithstanding high tides j699
Electric locomotive operates from trolley or battery (General Electric Co. and Electric Storage Battery Co.) n1041
Fordson locomotive built in 6, 7, and 8-ton sizes (Brookville Locomotive Co.) n*213
Gas-electric locomotives for construction service (Davenport Locomotive Works) n1079
Gasoline:
Gasoline locomotive built in 30-ton size (Dupont Rayon Co., purchased from Whitcomb) n*795
Models of 8 and 10 tons (Mid-West Locomotive Works) n*260
Painted locomotives are no innovation.. e512
Railway motive power, steam and electric, improvements in the various types. E. C. Schmidt..... *58
London, England, unification of rapid-transit lines proposed 565
LOS ANGELES, CALIF.
Sewage:
Santa Monica joins Los Angeles in sewage disposal plan n93
Water supply:
Status at end of 1926..... 62
Waterfront improvement, concrete piles lifted by "strongback"..... j*417
Los Angeles County:
Flood control:
Board of engineers, F. H. Fowler, C. D. Marx, and C. H. Paul, reports on flood control projects..... e551, 570
Eaton, E. C., named chief engineer of district n580
Engineers board reviews and criticizes plan n501
Henny, D.C. appointed on board..... n745
Paul, C. H., declines appointment as consultant n580
Reagan, J. W., and two others on consulting board n544
San Gabriel River:
Engineers appointed to study plans, el. n35
Status at end of 1926..... 62
Sewer project well under way..... n833
Lumber:
Extension fund proposed n920
Timber resources study is proposed..... 193

M

Manholes:
Steps of cast iron eliminate corrosion, used at Oklahoma City..... j*622
MAPS AND MAPPING
Maine to complete its topographic mapping 772
Maryland, public works funds bills..... n169
Maryland tornado:
Iron roofing sheet carried 50 miles..... 360
Materials:
Endurance of materials basis of future estimate of strength e1007
Foreign materials, House bill to lessen use n376
McArthur, J. D., death..... n131
Metals:
Hardness tests, checking Rockwell and Brinell methods 682
Steel. (See Beams; Columns; Steel: Stresses; etc.)
Metcalf & Eddy, two added to firm..... n92
Metereology. (See Wind; U. S. Weather Bureau; etc.)
Mississippi River flood. (See Floods; and Rivers, Mississippi.)
Monolith, stone, of 260 tons, moved 80 miles in Norway j*414
Montreal, Que.:
Harbor improvement bill proposes $12,000,000 ..... n338
Typhoid epidemic. (See Typhoid fever.)
Water and power company plant bought by city n422
Motor Truck Association of Chicago organized n506
MOTOR TRUCKS
Axle drive of new form (Relay Motors Co.) n*426
Gravity dump body for long-frame trucks (Anthony Co., Inc.) n*213
Overloaded trucks on New York City streets e303

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news

Motor vehicles:
Record year in 1926 ..... n97
Tractors, and trailers. (See Tractors; Trailers.)
Motors:
Base, spring-mounted, improves motor efficiency (Tension Motor Base Co. and Nilson-Miller Corp.) n710

MUNICIPAL ENGINEERING
Detroit economizing on engineers shows need of engineering publicity..... e595

MUNICIPAL IMPROVEMENTS
Frontage assessments for benefits.
Washington, D. C., repaving assessment on front-foot basis is illegal. e3, 20
Why not extend benefit principle to all sorts of public improvements. L. P. Blum ..... j 291
Paving assessments:
Flint, Mich., method of assessment for street paving. H. McClure..... *606

MUSCLE SHOALS
Bids:
American Cyanamid Co. bid not voted on n296
Censure of Chief of Engineers, in House of Representatives, and explanation..n256
Dearborn Independent quoted—how black the kettle is e99
Government experimenting with nitrogen manufacture suggested n296
Revenues of plants were $859,210 for 1926 ..... n131
Status at end of 1926..... 63

N

National Association of Highway Bridges (toll bridge owners) formed..... n128
National Automobile Chamber of Commerce Annual meeting at Chicago..... n666
National Committee on Metal Utilization:
Reinforcing steel, intermediate grade of A.S.T.M. adopted n506
National Conference on City Planning:
Annual meeting at Washington...e801, n832
National Crushed Stone Association, annual meeting n212
National Drainage Association asks flood relief n1037
National Drainage Congress:
Annual meeting considers flood problems.n789
Annual meeting, papers on irrigation and flood control in Southwest. F. D. Tomson, A. L. Fellows, L. K. Sherman, A. S. Stinnett a818
National Fire Protective Association:
Annual meeting at Chicago n829
Business leaders aid move to reduce fire waste e511, n543
National Industrial Advertisers Association, award to be made for emblem of power transmission n546
National Museum of Engineering and Industry, annual meeting n791
Trustees elect officers..... n295
National Sand and Gravel Association, annual convention n298
Navigation Congress. (See International Navigation Congress.)
New Jersey:
Transit plan facing difficulties..... 360
(See Aqueducts; Sewage disposal; Water supply; etc.)
New Jersey Constructors' Association, annual meeting n170
New Jersey meadows, report on reclamation by state board of commerce and navigation n170
New Jersey Sewage Works Association, annual meeting n541
New Orleans, La., drainage and electric service damaged by storm n664

NEW YORK CITY
Bryant Park underground parking plan for buses e100, n128
East River tunnel proposed..... n168
Engineers in city employ organizing to seek fair salary scale..... e635
Rapid transit:
Smith, C. E., of St. Louis, to survey rapid transit n627
Sewage-works may be built on Ward's Island n627
Sewage-works on Ward's Island, cost estimated n667
Subways:
Constitutional amendment to extend debt limit to be voted on..... n543
Contract clause on prevailing wage upheld n390
Fulton St. tunnel, four miles of construction using shield work..... *328
Fulton St. tunnel bid 22 million..... n879
McGovern contract approved...e390, n424
Slattery Engineering Co. gets contract for 173rd to 177th St. on Broadway n503
Status at end of 1926..... 64
Street obstruction due to subway building upheld by State Supreme Court n255
Transit:
Suburban transit to be studied by New York Port Authority n1037
Water Department:
Brush, W. W., new chief engineer.... n35
Water supply:
Coagulant used to reduce turbidity. W. W. Brush 112, e140
Delaware River tri-state compact and water supply chances..... e100
Status at end of 1926..... 64
Tunnels:
Second deep delivery tunnel for Catskill aqueduct water n376, *523
West Side improvement:
Bills passed by legislature on track elimination n543
Engineers agree on plan..... n880
Plan removes railways from streets.n*917
Work to start soon..... n93
West Side new plan for apartment buildings and rapid transit line and highway—a dream of an engineer..... e511

NEW YORK PORT AUTHORITY
Moran, D. E., and Moisseiff, L., consulting and advisory engineers on bridges.n668
New form of government..... e472
New Jersey legislature modifies control over Port Authorities n579
Suburban transit about New York City to be studied by Port Authority....n1037

NEW YORK STATE
Building supervision by engineer and architect proposed in bill..... n374
Engineers plan state organization..... n254
Holding companies, control proposed. e180, n210
Power authority, like New York Port Authority, proposed by Governor Smith n35, e472
Bill presented—killed by legislature. n170, n541
Power survey bill vetoed by governor...n582
Public Works Department:
Acheson, W. M., chief engineer..... n628
Road building, huge program urged by Governor Smith n34
Town planning boards authorized by new law e471, n502
New York State Society of Professional Engineers and Surveyors, meeting..... n374
News versus opinion in publishing..... e513
Norman victim relatives win second fight.n1000

O

Oakland, Calif., estuary vehicular tunnel:
Seven concrete segments in place..... n916
Status at end of 1926..... 62
Ventilation system design. e339. M. C. Collins *392
Ohio Engineering Society, annual meeting.n293

OIL FIELD ENGINEERING
Boiler of 25,000 lb. transported across a river bed j620
Civil engineering and construction in mid-continent oil fields:
I—Organization and scope. W. G. Bowman *598
II—Drill rigs, pipe lines and structures. W. G. Bowman..... *643
Pipe line of 200 miles built in Texas Panhandle *890
Pipe lines locating for crude oil transportation. L. E. Davis..... *728
Welding finds extensive use in oil field work, as by Oklahoma Natural Gas Co. *972
Oil well 8,000 ft. deep..... 355
Ore docks:
Wind gages for measuring gusts, designed for protective use on coal and ore bridges in Canada *280
Oxy-acetylene cutting of cast-iron pipe at grit chamber of Fitchburg, Mass., sewage-works, costs. S. Keith..... j*162

P

Paints and painting:
Power transmission cable over Narrows at Puget Sound painted j*416
Spray apparatus improved (Alexander Milburn Co.) n*259
Surface areas of structural steel computed by chart. R. J. Slater..... j*497

PATENTS
Chippawa intake found not to infringe Groat patent n421
Darnall patent for chlorinating water and sewage upheld n298
Structural patent obligations e800
Turbine patent decision, Allis-Chalmers against S. Morgan Smith Co. n1000

PAVEMENTS AND PAVING
Ada, Ohio, pavement curb forms held by wood brace. J. M. Weed..... j*479
Asphalt paving, sixth annual conference announced n584
Assessments for paving. (See Municipal Improvements.)
Granite block paving, Chicago, grout warmed in winter j498
Railway grade crossing pavement. (See Railway track and trackwork.)
Pennsylvania sanitary water board, staff.. 274

PENSTOCKS
Balch project in California, high-head penstock of banded pipe..... *406
European practice in penstock design, fabrication and testing. e716, O. Reed *718, *773
King's River power penstock sections handled by use of carriage and of a bucking-up hammer. D. McFarland.j*498

PHILADELPHIA, PA.
Pennsylvania R. R. terminal:
Status at end of 1926..... 64
Subway:
Status at end of 1926..... 64

PIERS
Bremerton navy yard pier supported on cylinders with shells of high alumina cement. J. J. Manning, and W. F. Way *348
Los Angeles harbor pier, loading space arranged to meet rail and truck needs *1027
Municipal pier, St. Petersburg, Fla., bandstand concrete slab lowered on melting ice cakes. E. A. Nordstrom.j*698
Vancouver pier B.C., muffler stops noise of steam hammer exhaust..... j*700

PILES AND PILE DRIVING
Concrete of high strength in three days on bridge pile in Kansas..... j*620
Humboldt Bay, California, ferry aprons, concrete piles have long life in sea water. G. F. Whittemore..... j 420
Pulling of wood piles through pivot pier by steam hammer, Wappoo Cut bridge near Charleston, S. C. E. D. Clement.j165
St. Louis water-works boiler house footings, driving 75-ft. 10-ton concrete piles. J. C. Allman j*952
"Strongback" lifts concrete piles in Los Angeles waterfront work..... j*417
Vancouver pier B.C., muffler stops noise of steam hammer exhaust..... j*700

PIPE AND PIPE LINES
Banded pipe in Balch project high-head penstock *406
Cast-iron pipe:
Linings, protective, of several types. C. W. Sherman j*872
Couplings, threadless, new (George H. Snell Co.) n*1080
Culvert pipe, perforated, improved (Canton Culvert & Silo Co.)..... n*1041
Culverts for pipe lines, jacking under pavement, method in El Paso County. F. E. Wilson j*787
Cushman, Lake, dam construction, wood-stave pipe line, 10-in., has suspended span 275 ft. long *162
Cutting of pipe:
Cast-iron pipe, large, cut by machine. Detroit water department. C. P. McGrath j*870
Outfit for cutting and salvaging pipe lines j*875
Oxy-acetylene cutting of cast-iron pipe at grit chamber, Fitchburg, Mass., costs. S. Keith..... j*162
Diameter of water and pipe lines, economic formula. R. W. Powell and J. W. Ledoux ..... l 499
England, leakage test of large cast-iron water main. T. F. Young..... j*1033
Highway construction water supply pipe lines. (See Highway construction.)
Los Angeles water supply aqueduct:
Dynamited at No Name siphon..... n915
Dynamited fourth time n1035
Three times dynamited in two weeks.n*960
Van Norman, H. A., injured in automobile accident n960
Mokelumne project for East Bay District:
Tunnel and siphons, progress..... n916
Oil gravity lines for crude oil, locating. L. E. Davis *728
Oil pipe line of 200 miles built in Texas Panhandle *890
Railway builds long water supply line.. 990
Sacramento valley irrigation line, corroded pipe repaired with gunite. R. G. Wadsworth j*496
Sand removal from gravity water supply line to Hyattsville, Md., filtration plant supplying part of Washington Suburban District. R. B. Morse and C. A. Hechmer j*868
Steel:
Oil field and industrial pipe by new process (A. O. Smith Corp)..... n1041
Suspended span of 275 ft. on wood-stave pipe line at Lake Cushman dam construction j*162
Threadless-pipe coupling (Farnstrom-Fons Coupling Co.) n*632
Wanaque aqueduct in New Jersey:
Changes arouse municipalities n916
Controversy on material, costs, watershed yield, general statement.e1045, 1062
Engineer consultant will report on controversy between concrete and steel..n959
Johnson substituted for Pratt and Sherrerd n832
Secret engineering question e931
Steel substituted for concrete..... n746
S. M. Ellsworth ..... l 827

Plumbers:
Short course at Massachusetts Institute of Technology e224
Planning of course. R. G. Tyler...l 577
Short courses in various places. R. S. Clark ..... l 418
Plumbing:
Illinois legislature considers bill for state plumbing code n502

PORTLAND CEMENT ASSOCIATION
Abrams, D. A., resigns from research laboratory n372
Short course on concrete mixtures..... n171

PORTS AND HARBORS
Albany, N. Y., port development:
Status at end of 1926..... 64
Barcelona, Spain, port development plans invited n1074
Buenaventura, Colombia, port improvement *106
Buffington, Ind., industrial harbor built..n998
Corpus Christi, Texas, gulf harbor and port under construction *560
Mobile, Ala., Alabama state docks:
Status at end of 1926..... 63
Montreal, Que., harbor improvement bill proposes $12,000,000 ..... n338
Railway and water terminals. (See Rail and water terminals.)

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news

Power. (See Hydro-electric power; Steam power.)
Pressures:
Soil loading test platform held against slipping. E. E. Seelye j*785
Prout, Col. Henry G., death e179, n*209
Public utilities:
State commissions cannot control interstate utility rates, Rhode Island case.. n93
Water rates of Milwaukee upheld by Wisconsin Railroad Commission e433, 451
Public works department. (See U. S. Government.)
Public works letting, Campbell bill may be delayed n171

PUMPS AND PUMPING

Centrifugal pumps at Detroit plant surpass previous efficiency records (Worthington pumps). e1007, W. Schwanhausser and W. C. Rudd *1015
Centrifugal pumps, high efficiency (Worthington Pump & Machinery Corp.) n*882
Centrifugal pump, non-clogging, eliminates screening (American Well Works) n*426
Diaphragm pump mounted on trailer for rapid portability (Humphreys Mfg. Co.) n*585
Diaphragm pumps operated through transmission gears (Domestic Engine & Pump Co.) n*884
High pressure pump and gasoline engine directly connected (Universal Motor Co.) n*548
Lift and force trench pump (Humphrys Mfg. Co.) n*1079
Multi-stage pumps of new design (Allis-Chalmers Mfg. Co.) n*884
Piston pumps, high pressure, self oiled (Novo Engine Co.) n*795
Vertical lift pump, light weight, with new head n*548
Water-works pumping station fire burning since 1849, at York, Pa. 453
Worthington Pump & Machinery Corp. buys Harris Air Pump Co. n298

Q

Quantity estimating department of Structural Steel Board of Trade, organized.. n630
Quantity Surveyors association. (See American Institute of Quantity Surveyors.)

QUANTITY SURVEYS AND SURVEYING

Associated General Contractors, local chapter bureaus aid progress in quantity surveying e223
Quantity surveying and surveyors defined 363
Quebec, plans for developing northern section industrially n918

R

Rail and water terminals:
Halifax, N. S., rail and water terminal to be built n93
Los Angeles harbor pier, loading space arranged to meet rail and truck needs *1027
Vancouver, B. C., rail and water terminal to be built n93
Western Maryland Ry. to build warehouse and pier in Baltimore n293
Railroad fill embankments, detector for discovering earth movement. T. M. Roberts j*332
Railway Appliances Exhibition, at Chicago, track machines numerous n466
Railway cars:
Freight cars, new, for shipments of unusual size, Pennsylvania R.R. n1080
Inspection one-man car, propelled by air-cooled engine (Mudge & Co.) n*631
Railway construction:
Camp headquarters on construction of new line for Southern Pacific Ry. in Arizona j334
Railway construction in 1926 ..... *314, 317, n342, n343, 409
Railway economics:
Depreciation accounting order by Interstate Commerce Commission, and comment. e889, H. J. Saunders 902
Railway engineering:
Erie R.R., changes in engineers n582
Railway freight terminals:
Boston, Chicago, Toledo and other cities, developments in freight terminals... e553
Railway location:
Denver & Rio Grande Western, relocation in Utah reduces grades from 6 to 3 per cent *315
Railway motive power, improvements in the various types. E. C. Schmidt *58
Railway snow removal. (See Railway track and trackwork.)

RAILWAY STRUCTURES

Engine houses:
Smoke jack to ventilate inside of engine house (Johns-Manville Co.) ... n340
Tanks:
Columns, standardized, for railway steel water tanks (Pittsburgh-Des Moines Co.) n*341
Japan train ferry. H. Nawa *148
Railway supplies, prices in carload quantities n342

RAILWAY TERMINALS

Cleveland, Ohio, railway terminal:
Status at end of 1926 63
Engine terminal economics (A.R.A. address) e1008
Philadelphia, Pa., Pennsylvania R.R. terminal:
Status at end of 1926 64
Unification of railway passenger terminals. E. E. R. Tratman *306
Railway ties. (See Railway track and trackwork, ties.)

RAILWAY TRACK AND TRACKWORK

Cinders:
Cinder handling and reclaiming equipment (Roberts & Schaefer Co.) .. n*341
Crane boom completes machine for general trackwork (Nordberg Mfg. Co.) n*711
Earth embankments, detector for discovering earth movement. T. M. Toberts .) *332
Frog and switch, can they be improved? e473
Gage:
Egypt, all lines brought to standard gage 911
Grade crossing pavement:
Metal crossing (Locomotive Finish Material Co.) n*340
Preformed track pavement (Philip Carey Co.) n*340
Guard rails a source of trouble, J. G. Sullivan ..... l 912
Harrow, disk type, for use on railway track motors for ballast work—Casey-Jones disker (Northwestern Motor Co.) n*341
Jack for surfacing or for track lining (Templeton, Kenly & Co.) n*632
Rails:
Anchor for rail use (Bethlehem Steel Co.) n340
Expansion shim for laying rails—Cotter device j*333
Fish-plate splice for 130-lb. rails adopted by C. M. & St. P. Ry. *654
French third rail for Paris—Orleans Ry. *697
Guard rail, one-piece, improved (Cleveland Railway Supply Co.) n*341
Saw for cutting battered ends of rails Racine Tool & Machine Co.) n*379
Strap rails, and first and second railroad in Illinois. S. O. Andros. ... l 252
Strap rails at Rochester, N. Y. W. Bissell ..... l 126
Strap rails on the Delaware & Hudson. L. F. Loree ..... l 252
Railway Appliances Exhibition at Chicago track machines numerous n466
Roadbed, concrete, for Pere Marquette R.R. *312
Snow removal on mountain railway in Norway, Oslo to Bergen. L. Lorange .*318
Spraying device reaches two parallel tracks (Read Mfg. Co.) n*427
Switch and frog, can they be improved? e473
Switch heater (Westinghouse) n*632
Switches:
Manganese steel casting protects railway switch points (Frog, Switch & Manufacturing Co.) n*341
Ties:
Economic aspects of the railway tie. e304
Machine for tie dressing (Yates-American Machine Co.) n*378
Specifications for railroad ties and tie treatment. e304, W. F. Goltra.. *309
Tamper, electric, with only one moving part (Syntron Co.) n*98
Track lock-nut provides safety and reduces maintenance (Andrix Lock-Nut Co.) n*426

RAILWAYS

Argentine, new railway lines 488
Australian railways, notes 269
Baltimore & Ohio R.R.:
Centennial, with historic pageant. *368 n829
Philadelphia terminal plans outlined. n667
Boston & Maine Engineering department reorganized n1036
Canada, construction of railways to be extensive n95
Canadian railway monopoly opposed ... 525
Charties Southern Ry. in Pennsylvania to be built n503
Chesapeake & Ohio R.R. asks control of Erie R.R. and Pere Marquette... n295
Clinton & Oklahoma Western Ry. applies for permit for 95-mile railroad n666
Consolidation:
Chesapeake & Ohio asks control of Erie Ry. and Pere Marquette.... n295
Detroit & Ironton merger plan rejected by Interstate Commerce Commission. n502
Great Northern Ry. and Northern Pacific merger proposed n127
Great Northern Ry., unification plan outlined by President Budd. ... n293
Kansas City Southern Ry. merger plan disapproved e839, n878
New York Central forced consolidation of short lines, recommendation of examiner of Interstate Commerce Commission e970
Railroad consolidation not dead issue e265
Short lines, recommendation of examiner of Interstate Commerce to force New York Central to take in short lines e970
Construction railways would aid jobs such as Gatineau River projects. W. C. Carey ..... l 578
Cumberland mountains, costly line to be built n998
Denver & Rio Grande Western Ry.
Improvement program n628
Relocation in Utah reduces grades from 6 to 3 per cent *315
Detroit & Ironton Ry. merger plan rejected by Interstate Commerce Commission n502
Electrification:
Africa, South, electrification results.. 537
India, railway electrification progress. 1056
Mexican railway electrification to be extended n504
Erie R.R.:
Chesapeake & Ohio Ry. asks control of Erie railroad n296
Georgia & Florida Ry., Augusta-Greenwood line in Georgia authorized. n36
Grade separations, railway grades, tabulation 983
Grand Trunk Ry.:
Car-ferry landing at Milwaukee 807
Great Northern Ry.:
Inland Empire lines to be acquired by Great Northern Ry. n37
Merger with Northern Pacific proposed n127
Unification plans outlined by President Budd n293
Hudson Bay Ry., completion to terminal on Hudson Bay, money appropriated. n667
Progress n92
Industrial railways for factory and construction work. e345, E. E. R. Tratman. *356, *402
Japan to build undersea railway tunnel. n35
Kansas City Southern, valuation case to be reopened n422
London tube railway altered under traffic 152
Los Angeles & Salt Lake R.R. case. Commerce Commission upheld in fixing value n375
Mergers. (See Railways, consolidation.)
New York Central R.R.:
Hutchinson River parkway drive, arch bridge built for highway undercrossing. A. G. Hayden *310
Kittredge, G., retires as chief engineer. n131
Norfolk & Western Ry. plan to build 53-mile line in West Virginia n169
Northern Pacific Ry., merger with Great Northern proposed n127
Northern Pacific Ry., Montana line, 62-mile, to be built n1076
Ontario:
Spruce Falls railway completed n544
Thunder Bay pulpwood area to have railroad n501
Oregon controversy, railroads fail to agree n94
Oregon Trunk Ry. and Southern Pacific Ry. reach agreement n1035
Oregon Trunk Ry. authorized to proceed with more construction n*879
Pennsylvania R.R.:
Skillman, T. J., new chief engineer .. n*338
Tunnel work in Philadelphia terminal project, shield used safeguards train movements. C. Carswell *316
Pere Marquette R.R.:
Chesapeake & Ohio R.R. asks control of Pere Marquette R.R. n295
Concrete roadbed test sections *312
Pittsburgh & West Virginia Railway Co. proposes 38-mile line n668
Quebec Extension R.R. line in Maine, work begun n92
Abandoned n879
Quebec, Lake St. John railway to be completed in 1927 ..... n544
Quebec to aid railway construction in line around Lake St. John n210
Reading Co. denied leasing of Lehigh and New England n463
Snow removal on mountain railway in Norway, Oslo to Bergen. L. Lorange..*318
Southern Pacific Ry.:
Camp section headquarters on construction of new line in Arizona... n334
Temiskaming & Northern Ry. may be extended n582, n625
Unification. (See Railways, consolidation.)
Valuation:
Depreciation accounting order by Interstate Commerce Commission, and comment. e889, H. J. Saunders... 902
Kansas City Southern valuation case to be reopened n422
Layman may find experts' valuation vulnerable e431
Los Angeles & Salt Lake R.R. case. Commerce Commission upheld in fixing value n375
Ruling of Interstate Commerce Commission in St. Louis & O'Fallon Ry. case n580
St. Louis & O'Fallon Ry. case, Interstate Commerce Commission outlines its methods—valuation for rate-making purposes e597, 612
Western Maryland Ry. to build pier and warehouses in Baltimore n293

RAINFALL AND RUNOFF

California damage caused by heavy rain. n336
Illinois heavy autumn rainfall in 1926.. 327
Mississippi Valley rainfall, early April. n664
New England, high and low rainfall, in past century 144
New Orleans, La., drainage services damaged by storm n664
New Orleans and vicinity, heavy rainfall coincident with river floods in April.. *697
Sewer design—storm sewers—and relation to rainfall-runoff analysis, developed in Columbus, Ohio. J. A. Rousculp *270
Rapid transit:
London, England, unification of rapid-transit lines proposed 565
New Jersey transit plan facing difficulties 360

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news

North Jersey transit commission enlarges upon its plans n294
St. Louis, Mo., street car subways proposed for city's transit system.... *482

Regional planning:
Chicago regional plan:
Chicago Regional Plan Commission reports year's progress n295
England and Wales, regional planning... 818

Zoning:
Arlington County, Va., granted zoning powers n581

RESERVOIRS

Australia, Nathan irrigation reservoir of large size 619
Echo reservoir in Utah to be built..... 355
Gasoline fire removes cement plaster in floor of reservoir near Los Angeles. E. R. Oden j*495
Largest reservoir in world above Martin dam in Alabama, and list of other large ones 11
Madison, Wis., covered concrete 6-m.g. reservoir built. L. A. Smith..... *852
Sacandaga reservoir:
Hudson River flow control project started toward construction of Sacandaga reservoirs n625
St. Louis, Mo., water-works reservoir, portable belt conveyor handles excavation j*247
Silting prevention by forestry..... 573
Retaining walls:
Multiple-arch retaining wall, on Cahuenga Ave. at Indian Gulch, damaged by earth slip. F. A. Noetzli..... *146
River control and regulation:
Colorado River:
Brush dam built annually on Colorado below Yuma *734
Hudson River flow control project started toward construction of Sacandaga reservoirs n625
River improvements and protection:
Colorado River delta, conditions and needs for protection, views from Imperial Valley, of a Reclamation Bureau engineer and a land company man. e432. *439
Colorado River in Texas, clearing a raft of drift timber. J. P. Markham.... *477
Ohio River locks and dams:
Status at end of 1926..... 63

RIVERS

Colorado:
Advisers to study problems stated by Secretary Work n709
Boulder Canyon dam bill.
Hayden opposes bill—water appropriation law violated n128
Sound and unsound business..... e101
Boulder Dam project:
Survey commission named by Secretary Work n582
Colorado delta conditions and prospects, views of Imperial Valley engineers, a Reclamation Bureau engineer, and a land company man. e432. *439
Dam in Arizona near Parker proposed. n1075
Flood danger in the Colorado delta—channel construction the only safeguard. P. M. Entenman..... *532
Flood prospects in the Colorado delta. G. G. Sykes 1827
Interstate compact:
Utah withdraws n169
Levee southwest of Pescadero levee built in 1927 849
Rodriguez levee, 16-mile, built on Colorado delta in Mexica by rush construction. 1927. I..... *1070
Colorado and Rio Grande joint international commission suggested in Congress n296
Colorado River in Texas, clearing a raft of drift timber. J. P. Markham..... *477
Delaware River:
Tri-state compact:
Second compact drafted n131
Mississippi River flood:
Atchafalaya basin flooded *829
Caernarven levee breached by engineers. R. B. McWhorter..... n*742
Spillway gives relief at New Orleans. A. M. Shaw 1*912
Crest passes Vicksburg n*741
De Soto's story of flood of 1543 851
Great Lakes drainage fallacy—a drop in the bucket e800
Gage of 52.8 ft. at Cairo on March 25 ..... n579
Levee breached at Poydras to save New Orleans. R. B. McWhorter..n*742
Louisiana threatened n*789
McCrea levee break floods region between Atchafalaya and Mississippi.n*876
New Orleans and vicinity, heavy rainfall coincident with river floods in April *697
Rain and gage heights, early April records n664
Recession of flood is slow..... n315
Record stages, levee breaks e635, e675, n*702
Rise, or second flood, checked by spreading into Tensas basin..... n997
Solutions:
Army engineer board to recommend spillways n915
Calm thought needed e93
Chicago meeting discusses flood control n960
Chief of Engineers outlines flood problem and discusses levees, reservoirs, and spillways 980
Data on which solution must be based. J. C. Hoyt..... 1956
Engineering board, army and civilian engineers should compose board, and reasons e841
Full study of Mississippi needed. C. A. Morse 1826
Jadwin, General, asks that full study and report be made..... n961
Levee boards, local, ask for aid in repairing flood damage n1075
Methods of regulation to prevent floods discussed e716
President should appoint an engineering commission to study protection e761
Mississippi Valley:
Drainage by federal financing plan suggested to Congress e969
National Drainage Association asks flood relief n1037
Navigable rivers, Utah senator's bill to define e223
Nile River storage reservoirs and irrigation plan on White Nile. C. W. Smith 1419
Ohio River:
Construction work at Louisville. (See Dams; and Hydro-electric power, plants.)
Pollution control pact of nine states signed n422
Power resources, rating standards adopted by Engineering Standards committee e676, 684
Rio Grande and Colorado joint international commission suggested in Congress n296
St. Lawrence canal negotiations to start soon n581
St. Lawrence River:
Commerce Department's estimates justify St. Lawrence River as Great Lakes to Ocean waterway...e179, n208
Expenditure from early beginning to 1926 was thirty million 268
Great Lakes to ocean waterway. Engineers board (Hoover Commission) reports in favor of St. Lawrence. e2, n34
International body to develop St. Lawrence River is suggestion of Secretary Hoover n463
Shannon River in Ireland, water powers being developed by Irish Free State. J. K. Prendergast *554, e636

RIVERS AND HARBORS

Appropriations total 41 millions..... n501
Rivers and Harbors bill signed by President n171

RIVETS AND RIVETING

Dolly for riveting H-beams used in Ireland. F. P. Terry j*622
Pitch of rivets, revised formula advocated as time saver. A. Frank..... 401
Road show. (See American Road Builders Association.)
Road shows:
New England road show announced....n546
Southwest road show and school to be held in Wichita n212
Roller bearing, huge, for Allis-Chambers installation in cement mill in Milwaukee (Timken Roller Bearing Co.) n*712
Roofing and siding of steel encased in lead (Superior Sheet Steel Co.) n884
Rubbish disposal. (See garbage and refuse disposal.)

S

Safety measures. (See Construction.)

ST. LOUIS, MO.

Grade crossing suit settled by Supreme Court n253
Street car subways proposed for city's transit system *482
Subway permission bill before state legislature n788
Water-works on Missouri River, boiler house, driving concrete piles. J. C. Allman j*952
Water-works reservoir, large portable belt conveyor handles excavation ...j*247
Salamander, oil burning (Macleod Co.)...n*795
Salmon problems still unsolved, say Ichthyologists 107

SAN FRANCISCO, CALIF.

Building code earthquake requirements being revised e677
Duboce street-car tunnel headings meet n463
Garbage problem being dallied with e346
Hetch Hetchy water supply project:
Status at end of 1926 62
Utilities commission planned n880
Water supply:
Purchase of Spring Valley System to be voted on..... n544, n789, e890
Spring Valley Water Co. purchase voted down n1035
Sanitary engineering:
Conference of State Sanitary Engineers, annual meeting in Chicago n961
Saws:
Compressed air operates portable hand saw (Ingersoll-Rand Co.) n1040
Many materials cut by portable hand saw (Wappet Gear Works) n*427
Sawing machine with endless sprockets (Reed-Prentice Corp.) n*671
Scales:
Wheel-load scales for auto trucks (Fairbanks Morse & Co.) n*748
Screens:
Ball-bearing vibrating screen (Link Belt Co.) n*50
Cel-o-glass, opaque watertight screen material for buildings (Acetol Products) 921
Vibrating screen, noiseless (Traylor Vibrator Co.) n*71
Sea coast urged as public utility, by American Shore and Beach Preservation Association n1000
Seismograph and the engineer. W. H. Heck 984
Seismological Society, eastern section—Discusses earthquakes n792

SEWAGE

Detroit, Mich., sewage system:
Status at end of 1926 63
West has more sewage nuisances than East and less sewage research e140

SEWAGE DISPOSAL

Los Angeles and Santa Monica join in sewage disposal plan n93
Screening plant operating costs at long Beach, Calif 911
Wolverhampton, England, sewage sludge piped to private farms 491

Sewage research:
California study of sewage and industrial waste, bill presented n170
Sewage association or sewage section of American Water Works Association not to be formed, but several bodies to cooperate in sewage research e969, n998
West has more sewage nuisances and less sewage research e140

SEWAGE TREATMENT

Activated sludge process:
Iron, role of, in the activated-sludge process. e180. A. Wolman *202
Chlorination:
Effluents of sewage tanks, chlorination studies at Huntington, N. Y., and efficiency and economy. W. D. Tiedeman *944
Foaming in Imhoff tanks at Lufkin, Tex., reduced by chlorination. C. Cohen 563
Contact aerators:
Iron as a carrier of oxygen—submerged contact aerators. H. W. Clark ...1578
Iron as a carrier of oxygen—submerged contact aerators. H. W. Clark.....1578
Iron in sewage treatment. C. P. Rhynus 1370

SEWAGE-WORKS

Aerators:
Submerged contact aerators not new. A. M. Buswell 1420
Association for sewage research, American Water Works Association decides not to form sewage section, but several bodies to co-operate in sewage research e969, n998
Ejectors:
Screenless sewage ejectors for building service (Yeomans Brothers Co.) n*749
Fitchburg, Mass., grit chamber, oxy-acetylene cutting of pipe, costs. S. Keith j*162
Lower Merion township sewage pumped to Philadelphia system. F. S. Friel ..*160
New Jersey Sewage Works Association, annual meeting n541
New York City:
Ward's Island may be used for sewage-works n627
Ward's Island sewage-works, cost estimated n667
New Zealand, Christchurch, sewage tanks of concrete, circular, erected and then sunk j*785
Oklahoma City:
New sewage-works being built. S. A. Greeley *976
Sewage plants including settling tanks, plant layout and construction ...*1018
Operation:
Sewage plant operators' course at Rutgers n128
Operators' course planned in New Jersey n37
Pump used to transfer sewage from Lower Merion Township to Philadelphia system. F. S. Friel *160
Wheaton, Ill., digestion tanks and sand filters 409

SEWER CONSTRUCTION

Hyperion outfall sewer serving Los Angeles joints reinforced by calking and banding e552, *566
St. Paul, Minn., sewer for new district *812
Semi-elliptical design for large sewers, developed in north outfall sewer, Los Angeles, and hydraulic features. W. H. Pinkham *119
Sewer design:
Rainfall-runoff analysis in storm sewer design as developed in Columbus, Ohio. J. A. Rouseulp *270
Semi-elliptical design for large sewers, developed in north outfall sewer, Los Angeles, and hydraulic features. W. H. Pinkham *119
Sewerage:
Baltimore, Md., financing the sewerage system. M. J. Ruark and C. E. Keefer *724

SEWERS

Akron, Ohio, sewer tunneling methods in soft ground. A. B. Backherms..*478, 523

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news

Byproduct fertilizer from waste that damaged sewer 602
Imperial Valley sewer, odor nuisance controlled. R. F. Goudey *648
Los Angeles County sewer project well under way n833
Los Angeles County Sanitary District sewer permit for ocean outfall granted n666
Mortar disintegration in Imperial Valley outfall sewer and control of odor nuisance. R. F. Goudey *648
New Jersey "joint meeting" of eleven municipalities to build second and larger trunk sewer. A. Potter..1 913, 1 1073
Defense of N. J. Health Department's attitude on joint sewage disposal. H. B. Costill 1 996
Shore protection:
Groins at Long Beach, L. I., damaged by heavy seas e390, *410
Discussion, H. V. Campbell 1 540
V. Gelineau and C. Weber 1 912
Sea wall of step type better than groins or jetties. H. V. Campbell 1 540
Shores and shoring:
Adjustable shore (Dayton Sure Grip & Shore Co.) n*711
Atlas shores (Roos-Meyer Hecht Co.) to be handled on Pacific Coast by W. R. Ames Co. n212
Concrete formwork shore, adjustable, of steel and wood. H. G. Martin design j*495

SHOVELS
Bucket capacity of shovel increased to 1¼ cu.yd. (Industrial Works.) n*547
Crane and ditcher booms for telescoping boom shovel (Star Drilling Machine Co.) *711
Crane-shovel, all-purpose (General Excavator Co.) n*547
Diesel power used in 1-yd. convertible shovel (Bucyrus Co.) n*507
Gasoline shovels:
Dipper trip by power, for gasoline shovels (Koehring Co.) n300
Half-yard and three-quarter yard shovels, new (Northwestern Engineering Co.) n*260
One-yard shovel strong (Thew Shovel Co.) n*710
Pull shovel attachment for truck crane. (Universal Crane Co.) n*585
Railway track shovel with turned steps (Ames Shovel & Tool Co.) n*378
Rope-crowd half-yard shovel (Byers Machine Co.) n*710
Sign at Lido Beach, Long Island, N. Y., structural details of erection. E. E. Seelye j*1031

SNOW REMOVAL
Demands, data and methods e2
Ice breaking machine (Chas. Hvass) ..n*97
Railway snow removal in Norway on mountain railway, Oslo to Bergen. L. Lorange *318
Snow loaders:
Flight-conveyor snow loader (George Haiss Mfg. Co.) n*39
Snow plows:
V-type snow plow, with wings (Baker Manufacturing Co.) n*39
State officials in 36 "snow states" report progress and program j31
Soil mechanics:
Resistance of soil due to viscous flow. E. deM. Vieira 1 *995
Soil loading test platform held against slipping. E. E. Seelye j*785
Soil surveys total 24,219 sq.mi. in 1926.. 184
South Carolina engineering societies hold annual convention n208
Stacks:
Birmingham Electric Co. power house stack collapse due to rusted rivets ..n207
Stadiums:
Northwestern University stadium design and construction and use of high-early-strength concrete *492
Stair tread of aluminum alloy (Pullman Co.) n*548
Standardization:
Flexible standardization is the right kind e552
Lath, metal, makers report on simplification program n1078
Steam power:
Steam or electric power requirements of industrial plants and mills 519
Steam power plant, how it is keeping up to date. C. H. Berry *88

STEEL
Billet steel reinforcing, conference.....n378
Carnegie new series of I-beam and column sections *362
Columns, solid-web, 89 tested at U. S. Bureau of Standards *454
Corrosion:
Tests of corroded steel beams restored with gunite at Ohio State University. J. R. Shank *574
Cutting steel by illuminating gas at general Electric Co. plants n*259
Foreign dumping of steel here, charges not substantiated n1078
Reinforcing steel intermediate grade of A.S.T.M. adopted by National Committee on Metals Utilization n506
Silicon steel:
High-silicon structural steel found strong and tough, in tests at Bureau of Standards 150
Stevens, J. F., elected president of American Society of Civil Engineers n*127
Stone monolith of 260 tons moved 80 miles in Norway j*414
Storm damage to North Atlantic coast resorts n336, e390, *410
(See Shore protection.)
Strain gages:
Concrete, instrument measures strain and temperature, as at test dam (Bureau of Standards) n*920

STREETS
Lighting of streets, relation to city planning e180
Street car track near curb suggested. F. S. Foote 1 166
Disadvantages. C. M. Durgin 1 460
Interferences many and serious. H. W. George 1 624
Street car tracks, locating away from center of street, designs in St. Paul and New York. G. H. Herrold and and E. M. T. Ryder 1 *957
Warren, Ohio, West Market St., raising and widening *816

STRESSES
Beams:
Corroded steel beams restored with gunite, tested at Ohio State University. J. R. Shank *574
Measurements:
Bridge over Yadkin River in North Carolina, stress distribution tests to be made n421
Strain gages:
International strain-gage competition not decisive 479
Wind action:
American Society of Civil Engineers making study of hurricane action...e139
Wind gages:
Pressure wind gages, for measuring gusts, designed for protective use on coal and ore bridges in Canada, of Algoma Steel Corporation *280

STRUCTURAL DESIGN
Drawings (engineering) and computations, checking important. J. W. Jourdan j1032
Endurance of materials future basis of estimate of strength e1007
Structural Steel Board of Trade, quantity estimating department n650

SURVEYS AND SURVEYING
Airplane carries survey equipment to Hudson Bay n422
Canada adopts bench marks of unusual size and design j249
Everglades survey proposed n127
Hydrographic surveys, sound ranging for position. W. E. Parker 274
Instruments:
Compass and tripod, very old, sold for $3.25. W. T. Crawford 1 292
Level designed for quick and accurate set-up (E. R. Watts & Son). n*1003
Swimming pool, New Haven, Conn., layout of accessary, equipment. J. F. Jackson. *232

T

Tachometer, hand, for checking engine and motor speeds (O. Zernickow Co.) n*884
Tacna-Arica boundary board re-assembles in New York n581
Tanks:
Railway tanks:
Columns, standardized, for steel railway water tank (Pittsburgh-Des Moines Steel Co.) n*341
Tank tower wrecked by twisting after removal of diagonals, Peabody, Mass. 121
Taxation:
Gasoline taxes:
State gasoline taxation upheld, in four cases, by U. S. Supreme Court ... n93
Interstate motor traffic, states given right to tax interstate carriers, Indiana-Ohio case e970, n999
Ties. (See Railway track and trackwork.)
Tile:
Drain tiles output in Wisconsin and Iowa n584
Fire resistance of hollow tile, Bureau of Standards tests 733
Timber resources study is proposed 193
Toronto, Ont., additional water supply and works, to cost $14,000,000 .....*616
Tractors:
Crawler tractor, wide-gage, a new Fordson attachment (Belle City Mfg. Co.) n*964
Heavy duty tractor built around Fordson unit n*379
Rubber shoed tractor Caterpillar type n*548
Trailers. (See Trailers.)

TRAFFIC AND TRAFFIC REGULATION
Chicago, Ill.:
Pedestrian traffic control proposed ... 450
Traffic survey and recommendations.. 192
Congestion and traffic accidents, report of Safety Advisory Committee of National Safety Council 1073
Mayors to meet in Chicago to study traffic n503
Model traffic control law adopted by some states 781
National Automobile Chamber of Commerce meeting and traffic discussion at Chicago n666
National Highway Traffic Association meeting in New York n666
States given right to tax interstate motor traffic, Indiana-Ohio case e970, n999
Timing of traffic lights by chart. L. H. Kunhardt 1 *460
Timing of traffic lights determined by slide rule chart, plan in Cleveland, Ohio 231
Trailers:
Steel bottom-dump trailer with new refinements (Miami Trailer-Scraper Co.) n*98
Transportation:
Colombia, S. A., transportation costs by rail and highway. "Caminero" 1 252
States given right to tax interstate motor traffic, Indiana-Ohio case e970, n999
Trench brace, simplex (Templeton, Kenly & Co.) n*1079
Trucks:
Concrete haulage, truck body specially designed for wet concrete (Whitham & Co., Wichita Falls) n*748
Short-haul truck on Fordson power (Wehr Co.) n*547
Three-ton truck for contractors (Indiana Truck Corp.) n*546
Wagon, all-steel tractor, for earth moving (Rex-Watson Corp.) n*671
(See also Motor trucks.)

TRUSSES
Eighteen-ton trusses, for power mill in Maine, hauled two miles by tractor...*576
Roxy Theater, New York City, large balcony carried by heavy truss framing. A. T. North *266

TUNNELS AND TUNNELING
Akron, Ohio, sewer tunneling methods in soft ground. A. B. Backherms .*478, 523
Big Creek tunnel camp, fatal snowslide n376
British rapid transit tunnels, shields pneumatic system, rotary excavator, survey methods *185
Cascade tunnel of Great Northern Ry.: "Cherry picker" handles tunnel muck cars j*335
Funds for report not approved by governor but commission will report n667
Short section holed through n*626
Status at end of 1926 62
"Cherry picker" handles tunnel muck cars, in Cascade tunnel j*335
Chicago, Ill., water tunnel, new dragline machine mucks rock e840, *859
Claremont tunnel explosion injures workmen n1074
Detroit, Mich., tunnel and bridge to Windsor planned n423
Detroit River tunnel, tremie concreting was most successful. J. L. Weller ...1 251
Drill steel car for use of crews in tunneling j*332
Duboce tunnel for street-cars, San Francisco, headings meet n463
Electric tunneling machine (Pioneer Machine & Engineering Co.) n*1040
Holland vehicular tunnel:
New Jersey approach designed as concrete-cased steel viaduct with special expansion joints *564
Status at end of 1926 64
Ventilation, studies, and methods adopted e932, *934, 1061
Hudson River, tunnel at 41st St. favored by New Jersey n960
Japan to build undersea railway tunnel. n35
Moffat tunnel:
Holed through n338
Pioneer bore holed through ...e263, n293
Progress to April 1, 1927.....n628
Status at end of 1926 63
Steam operation, feasibility report ... n92
Mucking machine, Chicago intake tunnel develops new type e840, *859
New York City, new East River vehicular tunnel proposed n168
New York City water supply, second deep delivery tunnel for Catskill aqueduct tunnel n376, *523
Oakland estuary vehicular tunnel:
Bridge and tunnel, economies costs and values compared. F. Lavis ..1 418
Status at end of 1926 62
Ventilation system, design and construction, e389, M. C. Collins *392
Pantograph for reproducing tunnel sections used in Bull Run power tunnel in Oregon j*622
Philadelphia, Pa., tunnel work in Pennsylvania R.R. terminal project, shield used, safeguarding train movements. C. Carswell *316
Shield tunneling for Fulton St. subway in New York City, Manhattan, East River and Brooklyn *328
Turbines:
Runners, iron or steel, comparative costs and efficiencies e513
Turner Construction Co. 25th anniversary n793

TYPHOID FEVER
Cross connections:
England, zymotic diarrhea outbreak in Borough of Poplar, caused by cross connections 856
Honor roll of 1926 855
Montreal's typhoid epidemic e635
Attributed to milk n542
Cases 3,000, probably due to milk e840, n876
Cases exceed 4,200, but milk sources not closed and information suppressed e888, n915
Cases pass 4,500 in 15th week n1036
Decline may follow present 4,700 cases n1075
Mystery of case e1046
Typhoid fever deaths in United States in 1925 233

U

U. S. BUREAU OF RECLAMATION
Colorado River advisers to study problems stated by Secretary Work n709
Congress failure to pass deficiency bill leaves project allotments short n424
Senate filibuster caused lack of funds for several projects n504

U. S. BUREAU OF STANDARDS
Cement, silicates, international research. P. H. Bates 121

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news

Columns, solid-web, steel, tested *454
Concrete workability test by flexible mold 728
Metals hardness tests, checking Rockwell and Brinell methods 682
Steel, high-silicon structural, found strong and tough ....
United States Chamber of Commerce, annual meeting n708, n791
United States coast guard to select three constructors ....
U. S. Congress: n424
Censure of Chief of Engineers on Muscle Shoals and attempted censure on Rivers and Harbors action n*256

U. S. GOVERNMENT

Cost of federal government has increased less rapidly than of local governments —but local pays for increased service e932
Public Works Department:
American Engineering Council drafts bill for proposed department, and submits to Congress n131, 154
Protest against department. S. B. Moore ....
U. S. Weather Bureau: ....l 291
Book drawing data from weather bureau experience, on mysteries of the air ..e347

V

Ventilation:
Holland tunnel, studies and ventilation methods adopted e932, *934
Oakland, Calif., estuary vehicular tunnel, ventilation system design. e389, M. C. Collins *392
Viaducts:
Holland Tunnel, New Jersey approach designed as concrete-cased steel viaduct with special expansion joints...*564
Vital statistics:
Highway accidents. (See Highway accidents.)
Typhoid fever deaths in United States in 1925 233

W

Washington, D. C.:
Traffic speed limit provision upheld n503
Union Station environs show lack of city planning e596
White House may be "dwarfed" by high buildings in Lafayette Square e263

WATER MAINS

Cast-iron large mains, cutting by machine, Detroit water department. C. P. McGrath ....
Cast-iron pipe developments (A.W.W.A. paper). H. Y. Carson j*870
Cast-iron pipe, protective linings. C. W. Sherman s985
Cross-connections. (See Typhoid fever.)
England, cast-iron water main, leakage test. T. F. Young j*1033
Gaskets, emergency, made of baby-buggy wheel tires. H. M. Naylor j*952
Jerusalem, Palestine, limestone cutting with oxy-acetylene j498
Joints:
Machine-made, internally wiped, solder joint for water service (Fapp Co.)..n*259
Leakage test of large cast-iron water main in England. T. F. Young j*1033
Manholes. (See Manholes.)
Pipe, copper-bearing steel, with galvanized or rubber coating (American Spiral Pipe Works) n*882
Services:
Gooseneck for underground service connections (American Brass Co.)..n833
Threadless connection for copper service pipe (Glauber Brass Mfg. Co.) n*883
Smithville, Mo., laying water main across small stream. D. S. McGlashon....j954

WATER METERS

Chicago mayor stops installation of meters e675

WATER POLLUTION

New Jersey bills against control of bathing in water supply bodies n390, n423
New Jersey, control of bathing in water supplies annulled n543
Ohio River, nine-state pollution control pact signed ....
Water rates:
Atlanta, Ga., water rate contest e303
Milwaukee water rates upheld by Wisconsin Railroad Commission e433, 451

WATER RESOURCES

Delaware and other rivers to be given interstate study n833
Herminghaus water rights case, California supreme court denies power company right to store waters that flood lands of riparian owners below e181, 204
Case may be appealed n746
Decision defended. "Ami du Mouvement" ....
Water-rights law of California may be amended as result of case ....l 371
Mexican boundary water negotiations by International Water Commission delayed n1036

WATER SUPPLY

Amarillo, Tex., developing 10-m.g.d. water supply from wells and surface sources ....
Atlanta, Ga., water rate contest *904 e303
Boiler feed water, studies by committee of A.W.W.A. 846
Boston, Mass.:
Status at end of 1926 64
Buried river furnishes water supply for Sullivan, Ill. *398
East Bay, Calif., Municipal, District water supply:
Mokelumne project:
Status at end of 1926 62
Tunnels and siphons, progress n916
Ellenville, N. Y., water supply ruined by landslide, restored by small dams and new pipe line. H. W. Taylor *847
Ground water supply for Beatrice, Neb., tests made. H. P. Letton j870
Highway construction water supply. (See Highway construction).
Illinois inland cities, Michigan lake water supply proposed ....
Indianapolis, Ind., water case, reproduction-cost-new theory. J. Jacobs n667
Landslide at Ellensville, N. Y., having ruined water supply, small dams and new pipe line restore supply. H. W. Taylor ....l 33
Los Angeles, Calif.: *847
Status at end of 1926 62
Lowell, Mass., annual yield of driven wells. R. J. Thomas 369
New Jersey bills against control of bathing in water supply bodies e390, n423
New Jersey water supplies, control of bathing annulled n543
North Jersey, Wanaque aqueduct controversy. (See Aqueducts; and Pipe and pipe lines.)
New York City:
Tunnels:
Second deep delivery tunnel for Catskill aqueduct water n376, *523
Water supply status at end of 1926.. 64
New York State courts to enforce protection of water supplies n581
Portland, Ore., Bull Run dam will double water supply. D. C. Henny *842
Poughkeepsie, N. Y., upland water supply proposed n169
Roadside water supplies:
Michigan highway water survey 186
Rochester, N. Y.:
City council approves plan for more water n625
Large additional water supply advised n542
San Francisco:
Hetch Hetchy project:
Funds need to be increased next year n372
Spring Valley Water Co. purchase voted on and voted down n544, n789, e840, n1053
Status at end of 1926 62
Sewers flushed with ground water, at Keansburg, N. J. A. Potter j866
Shamokin, Pa., and other municipalities and industries make almost complete utilization of waters of Roaring Creek. F. Gannett 1057
Sullivan, Ill., buried river furnishes water supply *398
Toronto, Ont., additional water supply and works, to cost $14,000,000 ....*616
Waste of water:
Madison, Wis., waste of water minimized by continuous inspection of lines. L. A. Smith j875
Well water:
Sand removal from well water. W. W. Brigden ....
Winnipeg, Can., flow tests of long aqueduct. F. S. Adamson and J. H. Grant *693

WATER TREATMENT

Aeration in Texas (A.W.W.A. paper). W. S. Mahlie a987
Alkalinity and acidity control by hydrogen-ion determination (La Motte Chemical Products Co.) n299
Alum dosing:
Ejectors used on alum dosing lines, Sacramento. H. N. Jenks j*867
Atlanta, Ga., gravity mixing basin. H. F. Wiedeman j*874
Boiler feed water studies (A.W.W.A. paper) a987
Chlorination:
Chile buys chlorinators for 22 cities from Wallace & Tiernan Co. n*882
Comparator set for determining residual chlorine (LaMotte Chemical Products Co.)
Coagulant, alum, used to reduce turbidity in New York City water supply. W. W. Brush 112
Coagulation:
Cincinnati, Ohio, double coagulation studies (A.W.W.A. paper). C. Bahlman and E. B. Evans a1028
Color determination practice at Minneapolis plant. A. F. Mellen j871
Filtration:
Small community, Bethel, Conn., filter plant operation. N. S. Hill j868
Sodium aluminate use with alum in filtration, results. S. T. Powell...j871
Iron removal:
Memphis, Tenn., operating results of iron removal. F. A. Mantel 855
Labor division in modern processes....e1008
Oakland, Calif., 12-m.g.d. treatment plant, at San Leandro *857
Sedimentation studies of American river waters (A.W.W.A. paper). A. W. Bull and G. M. Darby a986
Softening of water:
Columbus, Ohio, development in water softening (A.W.W.A. paper). C. P. Hoover a1028

WATER-WORKS

Atlanta, Ga., mixing basin. H. F. Wiedeman j874
Chicago, Ill., intake, Chicago Ave. tunnel, new dragline machine mucks rock e840, *860
Cleveland, Ohio, wash water reservoir control. L. A. Marshall j*866
Construction on new plane of expenditure since 1923 ....n*885
Demand—ratio of proposed projects to contracts awarded, parallels 1926 ..n1004
Equipment:
Chlorinators:
Chile buys chlorinators for 22 cities from Wallace & Tiernan Co....n*882
Fewer parts in new chlorinator (Paradon Manufacturing Co.) ..n*883
Diesel engine, new, for water-works installation (Chicago Pneumatic Tool Co.) n*882
Filters:
Air-binding of filters at Grand Rapids attributed to diatoms. L. C. Billings j875
Manifold, concrete, duplex, for filters (A.W.W.A. paper). F. B. Leopold.a987
Financing:
Construction on new plane of expenditure since 1923 ....n*885
San Francisco to vote on purchase of system—and purchase voted down n544, n789, e840, n1053
Trend through holding companies to public ownership of water-works ..e839
Fire-fighting facilities in small community, improvement. D. E. Davis ..j869
Madison, Wis., builds 6-m.g. covered concrete reservoir. L. A. Smith j*852
Oakland, Calif., 12-m.g.d. purification plant, at San Leandro *857
Oklahoma short course for operators n544
Pumping station fire burning since 1849, at York, Pa. 453
Pumping stations:
Alliance, Ohio, pumping station, additions and extensions. W. L. Havens j*872
Booster pumps, water-driven, in use at pumping stations (A.W.W.A. paper). A. L. Mullergren a986
Detroit, Mich., centrifugal pumps surpass previous efficiency records (Worthington pumps). e 1007, W. Schwanhausser and W. Rudd *1015
Louisville, Ky. C. B. Burdick j873
Engines. (See Engines.)
Pumps. (See Pumps and pumping.)
Valve, cone, automatic, designed for efficient check-valve service (Automatic Cone Valve Co.) n*883
Russian exhibit of water-works and sanitary equipment in May n466
Sacramento works, ejectors used on alum dosing lines. H. W. Jenks...j*867
St. Louis, Mo., water-works, boiler house, driving 75-ft. 10-ton concrete piles for footings. J. C. Allman j*952
Salaries of executives and technical heads (A.W.W.A. paper). W. W. Brush a985
Sand removal from gravity water supply line to Hyattsville, Md., filtration plant supplying part of Washington Suburban District. R. B. Morse and C. A. Hechmer j*868
Services:
Gooseneck for underground service connections (American Brass Co.)..n*883
Threadless connection for copper service pipe (Glauber Brass Mfg. Co.) n*883
Toronto, Ont., additional water supply and works, to cost $14,000,000 ....*616
Underwriters Laboratories activities on water-works equipment. D. Pierce...a985
Wash water reservoir control at Cleveland, Ohio. L. A. Marshall j*866
Wells:
Sand removal from well water. W. W. Brigden j869
West Palm Beach (Fla.) Water Co. builds 20-m.g.d. purification and pumping plant in ten months. C. F. Ruff....*1048

WATERWAYS

Great Lakes to Ocean waterway:
Commerce Department estimates justify St. Lawrence as waterway....e179, n208
St. Lawrence River as waterway favored by Hoover commission e2, n34
Illinois waterway:
Status at end of 1926 63
St. Lawrence canal negotiations to start soon ....
Weather:
Forecasts of weather aid construction. J. M. Weed n581

WELDING

Arc welding:
Prize for papers and suggestions for preparing papers j332
Prizes offered for treatises, by A.S.M.E. n630
Bridge of double-leaf Scherzer rolling-lift bascule type repaired by welding, Baltimore & Ohio Chicago River crossing n375
Buildings welded:
Arc-welded buildings, two, construction procedure at Westinghouse plant at Pittsburgh. A. G. Bissell..*942
Derry, Pa., welded factory building under construction j*333
Residences in New York City area of welded construction n961
....j*1033

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news

Sharon, Pa., Westinghouse factory, designing for arc-welding. G. D. Fish *102
Girders tested with hydraulic jacks. G. D. Fish *982
Sharon building inspected n*36
Glasgow, Scotland, building welded years ago. H. A. McCreadie l420
Butt welding machine, carbon arc process (Lincoln Electric Co.) n*1003
Fatigue resistance of welds, tests at McCook Field 975
Generator brackets, arc-welded, for Conowingo plant (Westinghouse) ...n*921
Joints welded, Lehigh University tests *619
Oil field work has extensive use for welding, as by Oklahoma Natural Gas Co..*972
Prize offered for year's chief contribution e799
Railway bridges in Australia reinforced by arc welding l017
Spot-welder, air operated, produces uniform welds (Gibb Welding Machines Co.) n*547
Telling a good weld by surface inspection. L. E. Moore 657
Thermit welding facilitated by electric heat (Metal & Thermit Corporation) n427
Welding machine constructed by use of welding (Lincoln Electric Co.) n*427
Wells:
Amarillo, Texas, wells for water supply..*904
Construction sanitation of wells, Missouri regulations (A.W.W.A. paper). W. S. Johnson and H. A. Buehler a986
Oil well 8,000 ft. deep 355
Yield of water per year of driven wells at Lowell, Mass. R. J. Thomas 369
Western Society of Engineers:
Annual meeting n504
Honors, annual, conferred n999
Wharves and docks:
Corpus Christi, Texas, gulf harbor and port under construction *560
Mobile, Ala., Alabama state docks: Status at end of 1926 63
Wind:
Florida hurricane damage shows need for different wind pressure design. L. F. Fletcher 281
Hurricane action:
American Society of Civil Engineers making study of hurricane action..e139
Maryland tornado:
Iron roofing sheet carried 50 miles ...360
Pressure wind gages, for measuring gusts, designed for protective use on coal and ore bridges in Canada *280
U. S. weather bureau, book drawing data from years experience, and other mysteries of the air n347
Winston, W. O., death e471, n*501
Wood, C. R., death n999
Wood preservation:
American Wood Preservers Association annual meeting papers abstracted ... 269
Incised and treated fir beams show high strength, report to wood preservers' association 535
Utilization committee to prepare technical pamphlets n835
National Committee on Wood Utilization, meeting announced n506
Woolson, Ira H., death e759, n*788

X

Xylol distillation plant built during War, Barrett Co. wins claim from United States n506

AUTHORS' INDEX

Adams, O. V.: Alumina cement caps successful on hardened concrete specimens..... 153
Adamson, F. S.: Flow tests of Winnipeg water district aqueduct *693
Affleck, B. F.: Reversing street traffic in central lanes increases capacity.....j*620
Ajwani, H. J.: Insuring responsible contractors (in India) l167
Allen, T. W.: Cutting, mixing and curing time on concrete road work (A.R.B.A. paper) a118
Allison, L. R.: Asphalt replaces water binding on arid road work..... 990
Allman, J. C.: Driving 75-ft. 10-ton concrete piles for St. Louis water-works footings j*952
Ames, L. R.: Embossed metal signs made by North Carolina equipment division ..j*30
Highway contract control and engineering service (A.R.B.A. paper).....a115
Ames, S. C.: In defense of unionized engineers l206
Andros, S. O.: More about old railroads..l252
Arend, A. C.: Value of small hydro-electric plants shown in Nebraska *1026
Atlee, W.: Composite steel and concrete frame in Fayetteville bank *771
Austin, F. H.: Designing equivalent concrete mixtures l914

Babbitt, H. E.: Short courses for plumbers l418
Backherms, A. B.: Soft ground tunneling methods for small sewer *478, 523
Bahlman, C.: Studies of double coagulation at Cincinnati (A.W.W.A. paper) a1028
Bailey, F. S.: Hydraulic jump formulas l126, l*538
Balsley, F. M.: Four-lane flexible paving slab for concrete streets *361
Bannister, E. W.: Rating buildings for liability to earthquake damage *1052
Barnes, F. E.: Is labor receiving too large a proportion of construction cost? ...n*797
Barrows, H. K.: Velocity of approach in dam design l826
Bates, P. H.: Silcates in portland cement 121
Beemer, J. A.: Emergency spillway around end of dam—observations on settlement of earth fill.....*108
Benham, W. L.: Concrete mix designing on an Oklahoma dam *655
Bennett, R.: Testing sand for concrete aggregate l291
Berry, C. H.: How the steam power plant is keeping up to date *88
Besson, F. S.: Relation between fineness modulus and concrete strength l956
Bigler, H. P.: Defense of high tensile strength reinforcing steel l663
Billings, L. C.: Air binding of filters attributed to diatoms j875
Bissell, A. G.: Construction procedure on two arc-welded buildings *942
Bissell, W.: Old strap railroad rails l126
Bixby, J. S.: Causes of concrete pavement deterioration 810
Blum, L. P.: Special assessments for paving and other public improvements l291
Boes, F. C.: Effective concrete floor protection for winter building *721
Bosshard, A. C.: License laws to exclude incompetents l540
Bowers, C. H.: Indian irrigation dams l460
Bowman, W. G.: Civil engineering and construction in the mid-continent oil fields *598, *643
Brigden, W. W.: Removing sand from well water j869
Brown, W. N.: Free professional service ...l166
Brush, W. W.: Coagulant being used to reduce turbidity 112
Compensation of executives and technical heads of water-works (A.W.W.A. paper).....a985
Buehler, H. A.: Well construction sanitation (A.W.W.A. paper) a986
Bull, A. W.: Sedimentation studies of American river waters (A.W.W.A. paper) a986
Burdick, C. B.: Water-driven booster pumps in use at Louisville, Ky. j873
Buswell, A. M.: Submerged contact aerators l420

Cady, R. W.: Buffalo-Fort Erie bridge piers built in swift current *638
Calder, G. J.: Deep water caisson sinking, Carquinez Strait bridge *484
Campbell, H. V.: Shore protection structures l540
Carey, W. C.: Light railways for construction job haulage l578
Carson, H. Y.: Cast-iron pipe developments (A.W.W.A. paper) a985
Carswell, C.: Front-wall arch abuts against columns j*164
Correction j*246
Reinforced-concrete girder footings carry eccentric columns j*415
Shield safeguards train movements in tunnel replacement *316
Chaffins, C. J.: Home-made gasoline shovel to handle small yardages j*27
Chapman, C. M.: Rapid field method for determining characteristics of sand ...j*955
Chevalier, W. T.: Price versus service in construction sales 244
Chew, R. W.: Structural features of the Graybar Building *226
Clair, M. N.: Testing sand for concrete aggregates l460
Clark, H. W.: Iron as a carrier of oxygen—submerged contact aerators l577
Clark, R. S.: Short courses for plumbers ..l418
Clement, E. D.: Wood piles pulled through pivot pier by steam hammer after blasting j165
Cohen, C.: Chlorination reduces foaming in Imhoff tanks 563
Collins, M. C.: Designing a ventilation system for a vehicular subway in California *392
Connell, W. H.: Measuring maintenance efficiency by unit costs 490
Ridgeway-Lock Haven highway *188
Conner, C. N.: Experiments in crack control in concrete roads 1022
Costill, H. B. Defense of N. J. Health Department's attitude on joint sewage disposal l996
Crawford, W. T.: "Sold for $3.25"—old compass and tripod l292
Crosby, W. W.: Travel notes on highway building in French Algeria *524
Cross, H.: Figuring velocity of approach in dam design l500

Dalzell, A. G.: Canadian housing and land development—planning for economy ...l740
Darby, G. M.: Sedimentation studies of turbid American river waters (A.W.W.A. paper) a986
Davis, D. E.: Improving fire-fighting facilities in a small community j869
Davis, L. E.: Locating gravity pipe lines for gathering crude oil *728
Dillman, G. C.: Priority in four-lane flexible paving slabs l540
Duncan, H. E. P.: Protection of hydrants from frost below ground 133
Durgin, C. M.: Street car tracks near curb l460

Eiffert, C. H.: Shrinkage of hydraulic fill for Huffman dam *145
Ellison, J. T.: Checking up road subgrade for payment (A.R.B.A. paper) a118
Ellsworth, S. M.: Wanaque aqueduct controversy l827
Enger, M. L.: Friction losses in tar-coated and cement-lined cast-iron pipe (A.W.W.A. paper) a986
Entenman, P. M.: Flood danger in the Colorado Delta—channel construction the only safeguard *532
Evans, E. B.: Studies of double coagulation at Cincinnati (A.W.W.A. paper)..a1028

Farrell, F. D.: Irrigation and the future..l1034
Feld, J.: Foundation experiences in water-bearing soils j623
Findley, R. H.: For more private toll bridges l540
Fish, G. D.: Designing the Sharon Building for arc-welding *102
Girders of welded building tested with hydraulic jacks *982
Fleming, R.: Proportioning steel slabs for column bases *941
Fletcher, L. F.: Florida hurricane damage as seen by a building official 281
Flumerfelt, O. F.: Jacking culvert casing under railroad tracks j*953
Foote, F. S.: Would put street car tracks near curb l166
Forrer, J. J.: Blower road cleaner is maintenance equipment in Virginia j*29
Frank, A.: Revised rivet pitch formula advocated as time-saver 401
Friel, F. S.: Sewage from Lower Merion pumped to Philadelphia system *160

Gannett, F.: Almost complete utilization of a small Pennsylvania stream 1057
Garnett, F. M.: Six counties combine to build 155-mile coastal highway *690
Gelineau, V.: Coast protection—suiting type to conditions l912
George, H. H.: Placement of street car tracks l624
Gerend, M. S.: Steam-cured cylinders give 28-day concrete strength in 48 hours ..*282
Tests on steam-cured concrete l624
Gideon, A.: American Society of Civil Engineers meeting has not sufficient time for discussion l292
Gilkey, H. J.: High-strength concrete for columns does not mean higher steel stress l166
Water gain and allied phenomena in concrete work *242
Goldbeck, A. T.: Thin stone surfacing improves earth roads a*813
Goodrich, C. F.: Counterweighted cables raise 433-ft. spans to high-level cantilever bridge *686
Goudey, R. F.: Outfall sewer experiences in Imperial Valley *648
Graffin, E. D.: Sinking building underpinned by unusual procedure *988
Grant, J. H.: Flow tests of Winnipeg water district aqueduct *693
Greeley, S. A.: New sewage-works being built for Oklahoma City *976
Green, R. M.: Theory of spacing cross-joints in concrete roads 641
Griffith, J. H.: Proportioning pit-run aggregate in concrete *390, l914
Groat, B. F.: In defense of current meters l370
Gurney, L.: Another earth dam built on Deerfield River *678

Hallihan, J. P.: Detroit and vicinity following master plan l958
Hamilton, J. B.: Velocity of approach in dam design l*826
Hammond, L. C.: Layout of concreting plants for three warehouses *730
Harrison, J. L.: Construction plant has too low load factor (A.R.B.A. paper) a116
Harvey, W. S.: Raising and widening West Market St., Warren, Ohio *816
Havens, W. L.: Providing additions and extensions to existing water pumping station j*872
Hayden, A. G.: Arch design cheaper than girder for road undercrossing *310
Hechmer, C. A.: Removing sand from gravity water supply line j*868
Heck, N. H.: Seismograph and the engineer...984

*Illustrated; a, abstracts; e, editorials; j, job and office; l, letter; n, news